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BEST OF THE TESTS:

*The top products
from the 260
tested last year*

CATEGORY- BREAKERS:


*Five that changed
the rules*

READER RAVES:

*Net execs
top picks*



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NetworkWorld

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Have you overhauled your network and realized a substantial return on this investment, discovered a significant new business opportunity or found a creative way to leverage technology? If so, get in the running for *Network World's* new Renovator Award, the top winners of which will be honored at a celebration in Las Vegas during NetWorld+Interop, May 3-5 sponsored by Juniper Networks. **DocFinder: 6093**

Face-off: Who's the biggest threat to your data?

Joseph Ansanelli, founder and CEO of Vontu, and Jonathan Bingham, president and co-founder of Intrusic, debate whether your employees or intruders are the bigger concern. **DocFinder: 6094**

Case studies

Learn best practices from your peers to make the most of technology and better your business. **DocFinder: 6095**

This week at *Network Life*: The Expert's Guide to the Connected Home

Every day, *Network Life* offers everything you need to know to keep your — and your family's and friends' — home network humming. Get the latest news, opinions, reviews, how-tos and more. **DocFinder: 4838**

Network World Fusion Radio

Get the inside scoop on hot technology issues, such as inexpensive servers, WiMAX, network security design and more. Stream the sessions to your desktop or download them as MP3s for later use. **DocFinder: 5942**

Poison blog?

Writing about your employer or goings on at work in a personal Weblog can have harsh consequences, just ask Mark Jen or Ellen Simonetti, fired from Google and Delta, respectively. Joining the program to discuss the employer/employee blogger relationship is Chris Gobey, senior counsel with the law firm Littler Mendelson. **DocFinder: 6102**

Online help and advice

Nutter's Help Desk

Debugging a Cisco SSL VPN connection
Help Desk Guru Ron Nutter helps a reader solve a problem in which his user can't access his directory. **DocFinder: 6096**

Security Chief

More from RSA: Gateway router with all the bells
Deb Radcliff attends her 10th RSA Security Conference in a row and gives you the inside scoop. **DocFinder: 6097**

Telework Beat

ARO Outsourcing expands at-home jobs beyond the call center, Part 2
Toni Kistner says insurance audits will never be the same with the addition of at-work work. **DocFinder: 6098**

Home Base

Tax time tips
Sandra Gittlen says SOHO businesses should skip the software; it pays to have your taxes done by a pro. **DocFinder: 6099**

Small-Business Tech

Beware the Ides of Microsoft
Columnist James Gaskin outlines the odd plans and upcoming betrayals from Redmond. **DocFinder: 6100**

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*Market share from Gartner Dataquest, Tape Automation Systems Market Shares, 2003, F. Yale, April 2004.

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News

Govt. braces for key security standard

Department of Defense could feel biggest impact of new smart-card rules.

■ BY ELLEN MESSMER

The National Institute of Standards and Technology last week raced to meet a weekend deadline to issue a smart-card standard that will be the basis for products that give federal employees and contractors secure access to networks and buildings.

President Bush imposed the deadline last August in a directive aimed at improving government security by having a common access technology adopted by next year.

The arrival of the Federal Information Processing Standard (FIPS) 201 is being met with a mix of optimism and anxiety. If it works out, the standard could provide a framework for adoption outside the federal govern-

ment. But more immediately, government agencies are concerned about its costs and practical implementation.

The Department of Defense, the government's biggest user of smart cards, is most worried.

"We expect we're going to have to make some changes," says Mary Dixon, deputy director at the department's Defense Manpower Data Center. The group has issued more than 3 million smart cards based on the older Government Smart Card Interoperability Specification (GSCIS).

In comments to NIST last December on the draft standards document, the Defense Department said FIPS 201 would force a "costly re-investment" that would "require [Department of Defense] to re-deploy desktop



“The whole process has gone through highs and lows in terms of communications between staff at NIST, industry and the government agencies involved.”

Randy Vanderhoof

Executive director, Smart Card Alliance

middleware to 2.2 million [Defense Department] computers," update 3.5 million Common Access cards and "impose an unproven solution with no supporting product."

The government did not release estimated costs to pay for Bush's mandate.

"[Department of Defense] CIOs and program managers will be hard-pressed to explain and defend this decision to their senior leadership," the department stated in its comments to the NIST, and added that the draft standard is at odds with changes planned by the agency this year. The Defense Department did not divulge those changes.

Dixon says the Defense Department will lobby for changes in FIPS 201 right up until its official publication.

The two NIST engineers who wrote FIPS 201, Cliff Barker and Jim Dray, aren't oblivious to the concerns surrounding the emerging standard.

"The majority of the controversies we enjoyed in the last few months are due to the legacy issues of the GSCIS world," said Dray said during a presentation he made two weeks ago at the RSA Conference. "But card management was one of the main things missing from GSCIS v.2.1."

Standard specifics

The smart-card platform expected to be unveiled this week is a "virtual machine card" with common namespace definition, management, file IDs and application IDs.

The standard also will define

procedures for establishing user identity before issuing a smart card. The NIST engineers said agencies, which use smart cards for access to networks or, less commonly, buildings, are going to have to get on board.

"We don't think it's going to be possible to have business as usual for agencies that don't want to change," Dray said.

The smart-card standard is expected to have two-fingerprint biometrics and a digital certificate for authentication. The smart card would support both "contact-based" and radio frequency identification (RFID)-based "contactless" methods for sharing data.

The contactless method has been controversial because of the concern that "you could come behind someone in an elevator and pull the biometric off a card using an RFID reader," says Dave Enberg, CTO at CoreStreet, which makes identity management and access control products for physical and logical systems.

"The whole process has gone through highs and lows in terms of the communications between staff at NIST, industry and the government agencies involved," says Randy Vanderhoof, executive director of the Smart Card Alliance in Princeton Junction, N.J., whose members include manufacturers such as Axalto and Gemplus.

Vendors to the government will inspect the published standard for how "tight the FIPS 201 specification would be in defining specific card data files and smart cards that would render existing systems incompatible." He adds: "The 'must' vs. 'may' vs. 'should' is critical to this process."

Two technical documents from NIST, Special Publications 800-73 and 800-76 expected out in March, will further define smart card hardware and biometrics requirements.

Gary Kleinfelter, vice president of engineering at Fargo Electronics and chair of a group

See FIPS, page 10

Satellite services improving but demand for them still iffy

■ BY TIM GREENE

A new battery of high-bandwidth satellites holds the promise of broadband wireless access to corporate networks, but land-based technologies such as DSL and wireless alternatives like WiMAX could leave providers of satellite-based very small aperture terminal services frustrated trying to drum up additional customers.

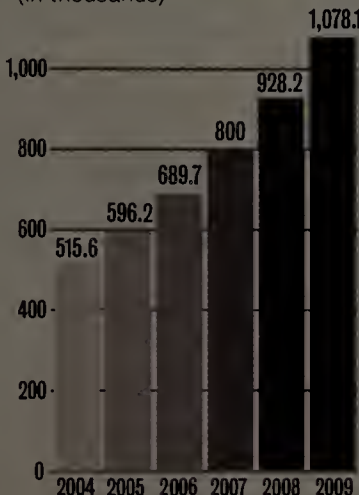
So-called Ka-band satellites, some already aloft and others to be launched later this year, support downloads up to 30M bit/sec for businesses and 2M bit/sec uploads. This is a vast improvement over the previous technology called Ku-band, which supported 1.5M bit/sec broadcast downloads but very little capacity for return traffic.

Traditionally used to reach sites that could not be reached by any

Growing satellites

The use of corporate satellite services is predicted to continue to grow over the next few years.

Enterprise sites using IP VSAT
(in thousands)



SOURCE: NORTHERN SKY RESEARCH

other means to support applications that didn't require much two-way talk, the U.S. satellite market has been dominated by Hughes Network Systems and Spacenet, which combined handle about 90% of business customers. Most of the customers for VSAT have been retail chains using the connections to send and receive daily sales and inventory data to headquarters. Higher, more symmetric bandwidth makes the technology attractive to businesses with more general network needs.

Despite its promise, use of Ka-band satellites for data services faces challenges because of the high price of ground equipment needed to support it and decisions to use it for high-definition TV signals rather than corporate data.

"The expectation for years was

See Satellite, page 17

News

Bits

Qwest ups ante in bid for MCI

■ Qwest, in its effort to lure MCI away from rival Verizon, last week made a new bid for MCI that guarantees the price it will pay to MCI stockholders. Qwest's new offer would continue to pay \$24.60 per share in cash and stock to MCI stockholders, in a deal worth about \$8 billion, the same price Qwest offered Feb. 11. However, the new Qwest bid would guarantee that purchase price, unlike a rival bid from Verizon, and it would allow a faster payout to MCI stockholders than Qwest's previous bid. MCI executives on Feb. 14 accepted a deal from Verizon worth about \$6.7 billion, arguing that the larger and more profitable Verizon would be the best long-term fit for MCI. Stockholders still would have to approve that deal. MCI issued a short statement Thursday: "MCI's Board will conduct a thorough review of the Qwest offer, as it has with all previous offers."

IETF taps IBMer as new leader

■ The IETF, the Internet's premier standards-setting body, has selected IBM researcher Brian Carpenter as its new chair. The appointment will be made official March 9 at the group's meeting in Minneapolis. Carpenter replaces Harald Alvestrand, a Cisco fellow who resigned the post after four tumultuous years spent restructuring the group's administrative processes and improving its financial situation. Alvestrand will return to a full-time post with Cisco in Norway this summer. Carpenter is a distinguished engineer with IBM's Systems Research Group at its Zurich Research Lab in Switzerland. Carpenter has been active in the IETF's development of IPv6, a long-awaited upgrade to the Internet's main protocol, IPv4. Carpenter has co-authored 21 IETF standards known as RFCs.

IBM adding oomph behind iSeries

■ IBM last week promised to give its midrange iSeries servers a boost, saying that it would provide \$1 billion in services and support to thousands of software partners over the next few years to help accelerate the development of applications and tools for the iSeries platform. Big Blue has been stressing its commitment to the iSeries for the past couple years, launching television and magazine ads extolling the reliability and flexibility of the platform, formerly the AS/400. Last year, IBM advanced the hardware piece of the puzzle, rolling out iSeries servers based on its Power5 processor. Now the focus is

"And now, the moment you've been waiting for: the demonstration of Solaris 10's new secure execution capability. . ."

Layer 8

Props to Wes Toman of Ottawa, Ontario, who put the words in Sun COO Jonathan Schwartz's mouth and beat a tough field of competitors for bragging rights this week. Check back every Monday for the start of a new contest.
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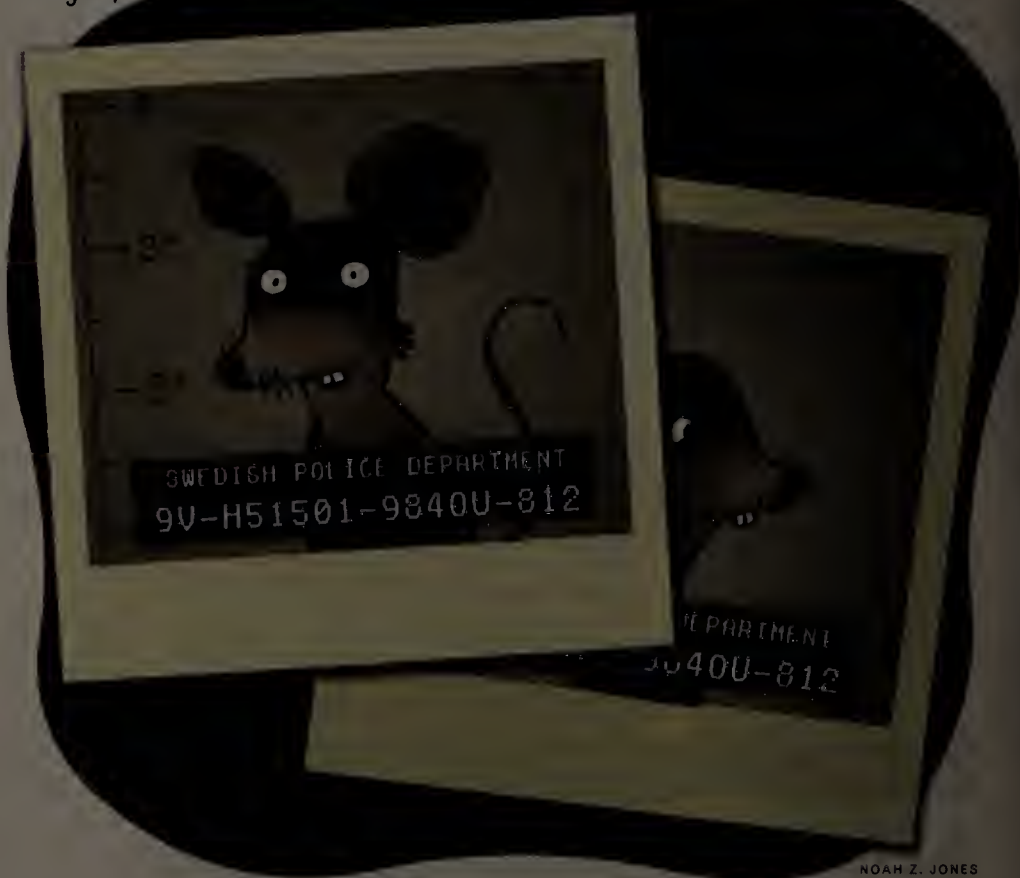
The Good The Bad The Ugly



Stopping "spim." A New York man has been arrested and charged with sending out unsolicited instant messages, marking the first known case of criminal action being taken against someone accused of sending "spim," or instant-message spam. The man was charged with violating the federal CAN-SPAM Act after allegedly sending more than 1.5 million instant messages advertising mortgage refinancing services and adult pornography to users of MySpace.com's IM service, according to a statement from U.S. Attorney Debra Yang. Read more about the case on page 34.



Mouse trap. Swedish telecom operator TeliaSonera is fingering hungry field mice as culprits in a 20-hour telephone blackout in the country last week, according to a Reuters report. The mice gnawed through fiber-optic cables, nixing fixed-line phone connections for 1,500 homes and affecting mobile phone service, the report says. ▼



NOAH Z. JONES



Laptop looting. Government contractor SAIC has reported a break-in to its corporate facilities in San Diego, during which laptop computers were stolen containing personal information about the company's stockholders. The company has notified current and former stockholders of the break-in to alert them of potential ensuing identity theft, although officials say they have no reason to believe that was the intent of the crime, which also included the theft of other unspecified items.

on hardening software support for the boxes, says Doug Fulmer, worldwide sales executive, iSeries e-business infrastructure at IBM. Today, the iSeries can support i5/OS — an updated OS/400 operating system — AIX, Windows and Linux, giving users greater flexibility. (New doings for xSeries, see story page 23.)

Microsoft hikes prices on SQL upgrade

■ Microsoft last week detailed increased pricing and new features for its long-awaited SQL Server 2005 database, which is expected to ship this summer. The newest version of the software, code-named Yukon and in development for the past four years, includes a new edition for small businesses and as much as a 25% price increase for the Standard Edition and 20% increase for the Enterprise Edition. The new edition, called Workgroup, has been introduced for the 2005 edition and retrofitted into the available versions for SQL Server 2000. It includes support for up to 3G bytes of data, the Management Studio tools and a feature called Backup Log shipping for disaster recovery. Many of the features Microsoft has added to the Enterprise and Standard Editions of SQL Server 2005 are to keep pace with rivals Oracle and IBM, experts say. The final release of the database is expected in July or August.

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EMC adds quick search, charge-back functions

■ BY DENI CONNOR

EMC this week is expected to announce enhancements to its storage system that make it easier for users to find files and determine the amount of capacity they are using.

Called Centera Seek, the software is a search facility that indexes the metadata kept for files stored on its Centera system. EMC also will launch Centera Chargeback Reporter, software that will let IT managers charge departments or business units for using Centera.

Centera is EMC's system for archiving fixed content — files such as medical images, e-mail archives or check images that don't change over time and need to be saved for government and regulatory compliance.

Introduced in April 2002, Centera is a centerpiece of EMC's information life-cycle management strategy, in which data is stored on media based on its value to the organization. Each Centera box consists of a number of nodes that can provide as much as 41T bytes of capacity per rack. Individual nodes can be clustered for as much as a petabyte of capacity.

When data is stored on Centera, it is assigned a unique content address and a metadata reference. Customers retrieve Centera data by writing custom scripts or applications that search the system for the metadata references.

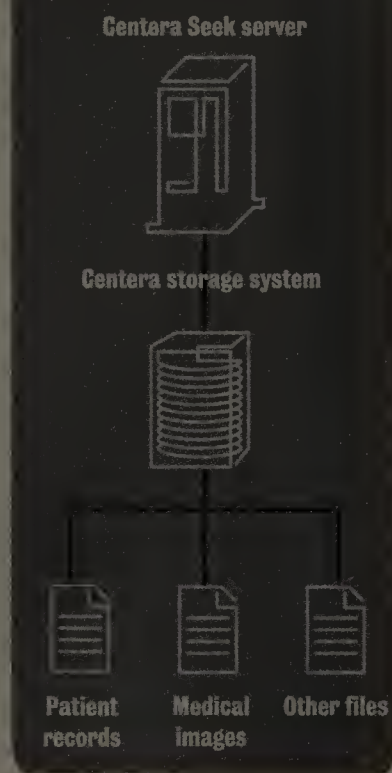
The Seek technology indexes the content addresses and metadata and lets users perform queries to extract and retrieve data without using custom scripts or applications.

"Seek is constantly monitoring what's in the library, so you can just go to that catalog to find something when you need it," says Randy Kerns, a senior analyst for Evaluator Group.

Centera Chargeback Reporter, which requires Centera Seek, continually monitors Centera and the files stored on it. Because it always has an up-to-date picture of Centera's contents, administrators can use it to charge divisions or departments for their use of Centera storage. Charges also

Quick queries

With Centera Seek, users can retrieve fixed content from EMC's Centera storage system without using custom scripts or applications.



can be by application such as e-mail or medical images.

"Being able to report who those users are and how much capacity they're using lets IT administrators deliver feedback to customers of their consumption on almost an instantaneous basis," says William Hurley, a senior analyst for Enterprise Strategy Group.

EMC's Centera competes with HP's Reference Information Storage System, IBM's TotalStorage DR550, Permabit's Permeon and Network Appliance's NearStore R200. Unlike these other products, EMC's Centera allows querying of data. Like Permabit's Permeon, Centera indexes the metadata repository.

Centera Seek and Chargeback Reporter require a dedicated server running Red Hat Linux Enterprise Server 3.0. Centera Seek starts at \$4,000 for four Centera nodes.

Centera Chargeback Reporter is \$1,000 for four nodes. Both are expected to be available at the end of March. ■

IBM to enhance WebSphere information integration wares

■ BY ANN BEDNARZ

IBM is readying the next version of its information integration platform, which will tie together data retrieval, content management and search technologies in an effort to make it easier for users to establish order over data resources.

Code-named Serrano after the chili pepper, the next version of IBM's WebSphere Information Integrator portfolio will feature enhanced search technology that uses natural language processing to derive meaning from corporate documents.

The revised platform, due to ship by year-end, will include tools that can discover and draw conclusions about potential relationships between different data sources, says Nelson Mattos, director of information integration at IBM. For example, the tools could find an Oracle database containing customer information and an IBM database containing sales transactions "and be able to understand what these databases contain and infer relationships that may exist between the data," Mattos says.

The platform also will combine content management features, such as the ability to alter and annotate documents, with search capabilities. "With the Web you are dealing with documents you don't own, but in an enterprise environment where teams have to work together, being able to find documentation and then add information to it is extremely important," Mattos says.

Interest in information integration technology is growing as companies look for ways to create a consolidated view of data scattered across myriad internal and external systems. The technology lets users aggregate, synchronize and query data that's physically scattered as if it were in one repository. Instead of copying data to a central repository, information integration technology lets data remain at the source while creating a virtual integrated view that resides in memory and can be queried as needed.

A key feature of information integration technology is the ability to handle both structured and unstructured data sources, says Susan Aldrich, senior vice president at Patricia Seybold Group.

Today, as much as 85% of information inside a company is in the form of unstructured documents, such as e-mail and word-processing files, as opposed to structured relational databases, Aldrich says.

"If you go back 10 years, it was pretty much assumed that any information that was worth anything was in a relational database, carefully tended and guarded," she says. "Now instead of having only a very controlled group and set of applications that create data, suddenly everybody creates electronic information."

Corporations are turning to information integration technology for help. Along with IBM, data management heavyweights Microsoft and Oracle are eyeing the information integration market, as are data warehousing vendors such as Informatica; search vendors such as Fast Search & Transfer; and a crop of specialists such as Ascential Software, Avaki and Composite Software.

Most recently Informatica reinforced its claim on the market, unveiling a product road map last

week. Informatica is planning three major releases of its PowerCenter platform over the next two years, starting with PowerCenter Advanced Edition.

The new version, due to ship in March, bundles Informatica's current PowerCenter data integration platform with its SuperGlue meta-data management tools, and PowerAnalyzer viewing and reporting features. The release adds team-based development tools designed to streamline processes among multiple developer teams and grid capabilities that let users run PowerCenter on a heterogeneous server grid.

The next two releases on tap from Informatica are code-named Zeus and Hercules. Zeus, due in the fall, are focused on expanding the platform to let users tie in external data sources. The Hercules edition of PowerCenter, due in fall 2006, is Informatica's implementation of a service-oriented architecture platform that lets users choose batch-mode, real-time or on-the-fly data integration, for example, as projects require. ■

NetworkWorld Renovator Award

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Site: Lessons from leading users

Wireless to take off at Vegas airport

■ BY JOHN COX

Between the wireless LAN switches and the radio frequency identification system, McCarran International Airport in Las Vegas is spending serious money to go wireless. And that's not even counting what it paid for used luggage.

The switches are for the airport's recently unveiled no-charge wireless Internet access services for passengers. The luggage was used early this year to run an extensive battery of tests on the first part of a \$120 million baggage system that exploits RFID tags and will boast 4 miles of conveyor belts.

"We bought just about every piece of used luggage we could find at Salvation Army stores and other places," says Samuel Ingalls, McCarran's assistant director of aviation, information services. "We cleaned them out."

The luggage was hauled to the Air Cargo Terminal, chosen to be the first site for what eventually will be an airport-wide automated system to collect, screen and X-ray luggage, and then parcel it out on time to the gates to load onto jets. The Air Cargo site also will be used to screen luggage checked in from offsite locations such as hotels and resorts. Later this year, bags from those sites will arrive at this terminal, run through screening and then pass along the conveyor system being built at the other terminals.

Early tests look good

The RFID tests at the terminal have been impressive, Ingalls says.

Bags with read-only RFID tags pass along the conveyors through gate-like RFID readers (see graphic). A radio chip in each tag sends out a signal that is picked up by the gate's antenna array. The tags transmit a unique 10-digit ID number, which is forwarded along with a time stamp to a secure Oracle database that associates the information with passengers' personal data and flight information.

Until now, each airline at McCarran had its own tagging system based on bar codes, which have to be read by a

laser scanner. The scanner must have a clear line of sight to the tag. But scans can fail to register because of dust on scanning heads, inclement weather in areas near jets or misaligned print heads that smear part or all of the bar-code label.

"Their read rates vary from about 80% to 90% accurate in most systems," Ingalls says. "Unless the tag can be clearly seen by the scanner, it won't be read."

and its airlines to bring the RFID system online, on schedule. The plan is to have conveyors in place, with RFID readers, RFID printers at the ticket counters in the main terminal and two new security scanning sites, all operational by mid-year, with the remaining sites in the months following. The first RFID printers are due to arrive in the next week or so.

The entire project — which includes conveyor installation, construction of

and dedicate some as radio monitors, says Gerard Hughes, airport network manager.

The access points were installed easily. The IS group mounted them on pillars supporting the ubiquitous video screens known as FIDS, for Flight Information Display System, which show flight arrival and departure information throughout the terminals. These pillars already were wired for electricity and a link to the airport's fiber backbone. The access points connect back to one of Aruba's high-end Model 5000 switches in the main terminal's data center.

"We liked the idea of the access point as a dumb radio, with the intelligence on the switch," Hughes says.

It's a stand-alone WLAN, running separately from the airport's backbone. Internet access is via a 3M bit/sec DSL pipe.

Roughly 200 to 300 people use the system daily. During the recent heavily attended Consumer Electronics Show, the number jumped to 900 to 1,200. A few times there were about 500 concurrent users, with no impact on performance.

The one unknown was customer support: how to handle the inevitable calls about connection problems or other glitches. The IS group chose simple Service Set Identifier, and put together an easy-to-read-and-use brochure that's distributed throughout the airport. It seems to be working: The help desk gets four or five calls a day about the WLAN. "So we think it's been pretty easy for people to get online," Hughes says.

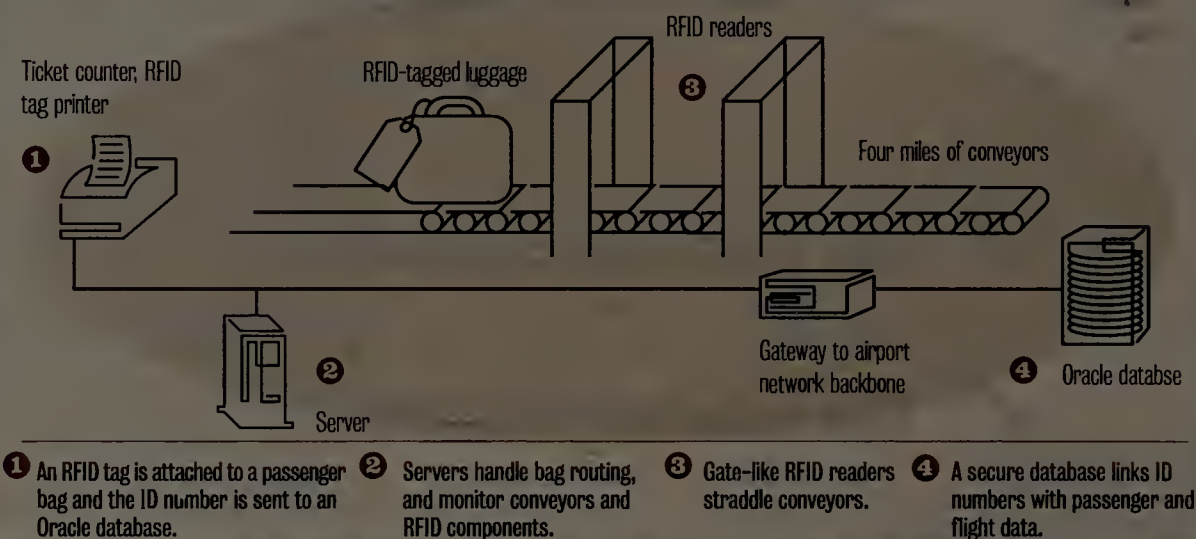
Recently, one airport tenant, which offers wheelchair services for passengers, began running its VPN over the WLAN so staff with wireless handhelds can schedule services while on the move.

Over time, Hughes expects other tenants and the airport itself to add applications to the network, using Aruba's virtual LAN tagging support to keep them separate. ■

HOW IT WORKS

RFID at the airport

McCarran International Airport is readying wireless-enabled tags to track and route passenger baggage.



Ingalls' goal for the RFID system was a read accuracy rate of 99.8%. In the tests earlier this year at the Air Cargo Terminal, using all those thousands of Salvation Army suitcases, backpacks and duffel bags, the lowest rate was 99.89%. "In one test with 3,000 bags, we had one misread," Ingalls says.

McCarran on average handles 65,000 outbound bags per day. If 10% of those were misread, the airport would have to have a process to handle some 6,500 bags manually, at least for part of the process. Every time a bag has to be touched between a ticket counter and a jet's cargo bay, it costs time and money.

Lost or late bags cost even more. According to data from SITA, a Geneva IT services company owned by airlines and other air transport industry companies, mishandled baggage cost airlines \$1 billion per year. The company estimates it costs an airline an average of nearly \$90 when a bag doesn't show up on time. In 2004, the number of mishandled bags in the U.S. jumped 20% over the 2003 figure, SITA says.

That's a big incentive for McCarran

what amounts to six multi-story buildings, IT spending, the RFID components and tags — will cost \$125 million. That includes a 5-year \$20 million contract for 100 million RFID tags.

FKI Logistex, a St. Louis company that specializes in automated materials handling, is building the new baggage system. The RFID components are from Symbol Technologies, which last fall acquired Matrics, the RFID company originally working on the project.

Most passengers will never notice this system, though they might notice that they no longer have to schlep their bags over to the X-ray machines after checking in. This should give passengers whose computers are outfitted with a WLAN card more time to use McCarran's free wireless Internet access system.

Wireless 'Net access

The \$75,000 WLAN system went live in January with 20 Aruba Wireless Networks access points — now up to 30. The airport plans to add another 30 over time to support more users, enable load balancing among access points



Wireless

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Internap offer supports links to multiple ISPs

■ BY TIM GREENE

Internap is introducing a consulting service to tune up business Internet connections at sites that have links to more than one ISP as a way to boost performance of their Web applications.

Called Professional Services, the offering combines customer network evaluation with advice on how to make sure traffic in and out of Web servers travels through the ISP that offers the best service at that time.

The service provider, which sells high-reliability, high-performance Internet connections among other programs, developed Professional Services based on its experience selling route-optimization gear to its customers. These customers had decided they wanted to buy the equipment but lacked expertise in Border Gateway Protocol (BGP), the technology on which the route-optimization gear is based.

Internap's Flow Control Platform sits on corporate networks as a peer with WAN routers that are connected to more than one ISP, a setup called multihoming. The boxes monitor flows in and out of the sites to determine delay, and whether one of the ISPs can supply a faster or less expensive service. Based on customer-set policies, the devices can issue route table changes that divert traffic to the appropriate ISP.

Internap has obtained most of the route-control expertise through purchases last year of Sockeye Networks and NetVmg, two start-ups that specialized in this type of gear and Internet traffic analysis.

Properly setting the machines requires knowledge of BGP, talent that is in short supply, says Douglas Chadwick, CEO of hosting provider Dynamic Concepts in Aliso Viejo, Calif., which uses the service. Even if he could find qualified people to handle the gear, they would cost too much.

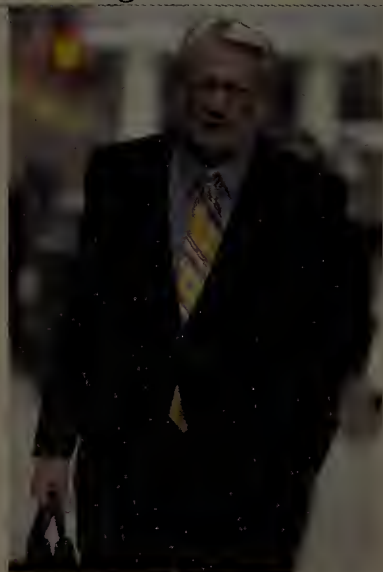
"If I had these people on staff, it might be four or five months before I had a customer who needed that expertise," he says. "I find it's more cost effective to have a virtual team of experts" through Internap.

The services are broken down into five categories: Multihoming Jump Start, Multihoming Optimizer, VoIP-readiness Assessment, VoIP Optimization and Global Application Optimization. The services cost \$5,000, but the price is customized depending on individual customer circumstances. Hardware is extra. ■

EBBERS ON TRIAL: Defense begins its case

As the defense last week began to build its case in the trial of former WorldCom boss Bernie Ebbers, a former company board member testified that chief prosecution witness Scott Sullivan told him that Ebbers did not know of certain fraudulent journal entries. Bert Roberts said he spoke with Sullivan on June 20, 2002, as part of the board's inquiry into questionable accounting changes that Sullivan approved. "I asked Scott whether Bernie knew, and his answer to me was that Bernie did not know of the journal entries," Roberts said.

"I did not pursue the issue further." Upon cross-examination, Sullivan denied any recollection of that conversation. Another witness, internal auditor Cynthia Cooper, also bolstered Ebbers' contention that he was unaware of the financial improprieties that Sullivan already has pled guilty to having committed. The defense was to resume its case today.



Ebbers arrives at Federal Court in New York, Tuesday, Feb. 22. (AP photo/Mary Altaffer)

Neterion launches another 10 Gigabit Ethernet NIC

■ BY PHIL HOCHMUTH

Keeping ahead of competitors — and possibly user demand — Neterion last week announced a version of its 10G Ethernet server adapter based on the emerging PCI Express standard.

The XFrame E network adapter will let users with big bandwidth needs move data between servers at speeds of up to 10G bit/sec over a fiber-based 10G Ethernet LAN connection, the vendor says. The product is targeted at such applications as network-attached storage devices, digital video editing machines and high-performance computing clusters.

Neterion, formerly known as S2IO, released its XFrame II 10G network interface card (NIC) in January, based on the PIC-X 2.0 server/PC bus standard. That NIC was the first product from S2IO that delivers a full 10G bit/sec of throughput, as past 10G NICs from the vendor topped out at about 6G to 8G bit/sec because of limitations on how the card interfaced with PCI-X bus slots, Neterion says. Like the XFrame II, Neterion's new XFrame E allows for a full 10G bit/sec Ethernet interface.

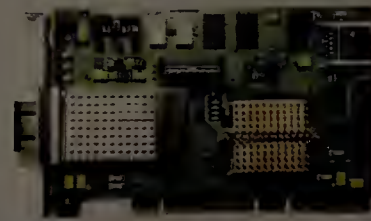
The cards will support Linux, Unix and Windows.

The PCI-X 2.0 standard gives a computer an I/O rate of up to 4.26G byte/sec (or 34G bit/sec). The PCI Express standard drives this I/O rate up to a maximum of 16G byte/sec; this could allow for multi-port interfaces of 10G Ethernet, InfiniBand or other high-speed interconnect technologies.

Vendors with PCI Express 10G Ethernet adapters include Chelsio Communications and Intel. However, these vendors' cards support a maximum of 6G to 8G bit/sec, according to Neterion. Myrinet, which makes high-speed interconnects for computer clusters, plans to have a PCI Express-based 10G Ethernet NIC available in the second quarter.

While these types of server speeds are technically feasible and commercially available, analysts say there should be minimal uptake of 10G NICs and PCI Express-based servers in the next few years.

Any server NIC products coming out now are strictly for leading-edge users, says James Opfer, a research vice president at Gartner. These might include



Neterion's new 10G NIC supports PCI Express bus technology.

users of high-performance computing clusters — such as research laboratories or oil and gas exploration firms.

While server vendors are leaning toward PCI Express-based systems, Opfer says this high-speed bus architecture is also a ways off. "You just don't put in a new bus architecture that's 10 times faster overnight," he says.

For early adopters of 10G Ethernet switches, 10G links to servers may be the next logical step. But users who have upgraded to 10G

switches might want to catch their breath with the new LAN technology first.

"We're happy with 10 Gigabit just in the [LAN] core right now," says Dan Moreale, CIO at the North Bronx Healthcare Network. The healthcare group, which comprises three hospitals and several clinics, installed 10G Ethernet switches from Extreme Networks in 2003.

Moreale says he has looked into 10G NIC technology, possibly for large network-attached backup servers. But "it's just at the idea stage," he says. "I'm not ever sure the I/O [on our servers] could handle it."

Neterion's XFrame E NICs will be available through the company's server vendor partners later this year. Neterion server hardware resale partners include IBM, HP, Silicon Graphics and Sun. ■

Juniper hiring hints at company's buyout plans

■ BY JIM DUFFY

Despite public statements to the contrary, Juniper appears to be moving fast on the acquisition front, particularly in wireless LANs.

Late last year, the company quietly appointed a vice president of business development to, among other things, orchestrate the company's acquisition of a WLAN player. Nicholas Pianim has a background in venture capital and once led a now-defunct Internet data center company.

Pianim did not respond to an interview request left on his voice mail at Juniper, and a company spokeswoman said he probably won't.

According to published reports, Juniper CEO Scott Kriens said at an analyst meeting less than two weeks ago that the company looks to acquire firms and/or technology where it has gaps, but that Juniper is in no hurry. Pianim's appointment indicates otherwise, as Juniper and other industry players look to counter Cisco's recent \$450 million acquisition of WLAN switch maker Airespace.

Sources say Pianim is in discussions with Juniper WLAN partner Colubris Networks, and WLAN switch makers Aruba Wireless Networks and Trapeze Networks. The possible targets were tightlipped about any such talks.

"There really isn't anything we can say regarding Juniper or any other potential partnership," a Trapeze spokeswoman said.

Pianim also is overseeing an internal bake-off between Aruba and Colubris gear at Juniper, sources say. The "winner" of that evaluation could end up being bought by the company, they say.

Some observers believe the frontrunner is Colubris, which has a 2-year-old joint development and marketing arrangement with Juniper for public WLAN hot spot and secure enterprise WLAN applications. The two have multiple joint customer accounts.

Sources also say Aruba will seek well north of what Cisco paid for Airespace, which might make it too expensive for Juniper. Then again, the \$1.3 billion network equipment maker paid \$4 billion in stock last year for NetScreen Technologies.

Analysts expect Juniper to acquire companies this year to broaden its penetration into the enterprise network market. Other areas under consideration are VoIP storage, and Layer 3 and 4-7 switching, analysts say. ■



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Software safeguards mobile net devices

■ BY JOHN COX

Updated software from Credant Technologies promises to simplify data encryption on mobile devices and fill in cryptographic gaps left by rival products.

With Mobile Guardian Enterprise Edition 4, network administrators can set up encryption policies for mobile workers without those users having to do anything. The Mobile Guardian Shield client runs on Windows-based laptops, PDAs and smartphones, and enforces policy selections whether a user is online or offline.

"There are tons of competitors, most of them offering file/folder or complete hard disk encryption products," says Deb Mielke, managing director at Treillage Network Strategies. "But with Credant, you can centralize the control and administration of all this."

Until the new release, Mobile Guardian was a folder-based encryption program.

Rivals include PC Guardian Technologies, Utimaco Safeware, Pointsec Mobile Technologies and Microsoft, whose Encrypting File Systems are part of Windows 2000 and XP. Some vendors, such as Senforce (for more information on the company, go to www.nwfusion.com, DocFinder: 6092), incorporate client encryption as part of a larger package of mobile protections.

Mobile Guardian doesn't encrypt the Windows operating system, program files and similar data. Credant executives say that in some cases a flaw, such as a bad sector on a disk, can cause a fully encrypted disk to no longer boot Windows, which renders the client unusable.

The new version of Mobile Guardian lets administrators selectively encrypt data, files and folders that are often overlooked by encryption vendors or users.

One of the better-known examples is page files (formerly called swap files) created by Windows to temporarily store data and applications to free memory for other programs.

Release 4 costs \$72 per user for a 1,000-user license. ■

Aerospace firms take to offshoring

■ BY JENNIFER MEARS

With the airline industry continuing to struggle, aircraft manufacturers such as Boeing and Airbus are expecting to cut costs by sending some of their software development and engineering work offshore.

Increasingly, offshore providers realize that they must cater to vertical market segments and establish more technical expertise in areas such as aerospace, telecom, and oil and gas. Recent moves by Indian IT providers such as Tata Consultancy Services and Wipro Technologies underscore the trend.

Tata, which offers specialized services for 11 vertical industries, including banking, energy and utilities, and insurance markets, is adding one more vertical market to its roster. Earlier this month, Tata announced a partnership with India's state-run National Aerospace Laboratories to develop the expertise needed to serve the aerospace industry.

The two organizations say they jointly will offer services for aerospace firms, which include design, testing and advanced computer-aided technologies.

Tata also last week announced the launch of its Flosolver Mk6, a parallel-computing Xeon-based machine that runs Linux and is designed specifically to support aerospace applications.

Tata executives say they see growing demand for services and technologies in the global aerospace community.

Evidence of that came earlier this month when Indian IT services firm HCL Technologies announced a multiyear, multi-million-dollar contract to provide software and hardware development services to Boeing for its new 787 Dreamliner project.

Aerospace has been a key vertical market for HCL since the late 1990s, but the deal with Boeing illustrates the move into more critical IT projects. Under the agreement, HCL will provide a hosting platform for Boeing's flight test computing system, and software development services to Boeing and its Tier 1 partners.

"If you examine ... the tumult of airlines at the present time, it's no wonder that members of the supply chain are adversely affected," says Dane Anderson, program director of technology research services at Meta Group.

Specialized treatments

Offshore IT service providers are heightening their focus on vertical markets such as aerospace and telecom. Developments in February:

- Boeing signs a multiyear, multimillion dollar contract with Indian IT services firm HCL for software and hardware development for Boeing's 787 Dreamliner program.
- Offshore IT services provider Tata Consultancy Services expands into the aerospace vertical market by partnering with National Aerospace Laboratories in India, announcing the launch of its Flosolver Mk6 computing machine, which can handle a range of aerospace applications.
- Indian IT services firm Wipro Technologies announces a partnership with TestQuest to provide test automation services for the mobile and wireless industry and says it is developing a multimedia messaging service automated test product for "one of the world's largest operators."

He says by looking offshore — and pinpointing what areas of IT can best be offloaded — aerospace firms can increase cost efficiencies.

"As airlines continue to struggle with managing cost on a day-to-day basis, elements supporting the airlines need to do so as well," he says.

Results of a Merrill Lynch survey of 50 CIOs in December found that a key driver for moving jobs offshore is the expected cost savings.

According to the survey, more than half of the CIOs polled said they expected to see between 25% and 49% cost savings as a result.

To respond to the demand for more advanced services, IT firms have to step up their vertical market expertise. Wipro earlier this month announced a partnership with TestQuest to provide test automation services for Wipro's growing customer base in the wireless and mobile industry. ■

Peregrine upgrades asset mgmt. suite

■ BY ANN BEDNARZ

Peregrine Systems this week is set to announce a new version of its IT asset management suite designed to help corporations better gauge their software licensing requirements and stay in compliance with license agreements.

AssetCenter 4.4 has new tools for software metering. While current modules let users keep tabs on the number of software licenses in use, Peregrine's new software asset management module adds the ability to track in greater detail who is using which applications and for how long, says Craig Macdonald, vice president of product marketing and management at Peregrine. "What we're getting now is more specific information about actual usage patterns."

By tracking software usage, companies can find unused licenses and potentially renegotiate software contracts to lower

Wasted software assets add up

Unused applications cost companies billions of dollars each year in unnecessary IT spending, according to research from BPM Forum.

- Only 25% of 226 survey respondents conduct a company-wide software audit annually.
- 13.4% never conduct software audits at all.
- 61% have no formal system for qualifying, certifying and validating current and new software applications.
- 73% of respondents have no systematic processes for retiring applications.
- 70% are convinced they're maintaining redundant, deficient or obsolete applications.

spending. Additionally, with AssetCenter 4.4, companies can streamline the software auditing process, Macdonald says.

Vendors increasingly audit customers to make sure their usage complies with contracts. But manually getting through an

audit can cost a company \$35 per device, he says. With AssetCenter, IT can track licenses down to the version number and reconcile contractual metrics against actual installations.

Many companies are paying more attention to IT asset man-

agement in the face of continuing budget squeezes and increased regulatory requirements, according to Gartner. Managing software resources is not an area that corporations have mastered. Fewer than 10% of Gartner's customers have optimized software asset-management programs underway, the firm says.

Other vendors competing in the asset management market include Altiris, BMC Software, Computer Associates, HP and LANDesk Software.

AssetCenter 4.4 is set to ship in March. The full suite includes tracking tools that provide a consolidated view into a company's hardware, software and network assets; expense control tools that help track costs associated with any IT asset from its acquisition to disposal; and process automation capabilities for streamlining asset-related business processes such as procurement, invoice and payment reconciliation. ■

Satellite

continued from page 7

that broadband satellite would produce [demand for] millions and millions of [business] sites in a short period of time, and it just hasn't done that," says Chris Baugh, an analyst for Northern Sky Research. "Satellites are at a big disadvantage."

The result is that growth of satellite use remains constant — about 4% to 5% per year — rather than making a dramatic jump to 7% to 10% as industry observers expected last year. Worldwide, there are fewer than 1 million corporate VSAT sites (see graphic, right), according to Northern Sky. Worldwide VSAT revenue from businesses last year totaled \$1.76 billion.

Still, there are encouraging signs. A Ka-band satellite launched last year, Anik F2, is scheduled to support new small-business data services later this year via BlueSky, a start-up funded with \$150 million. Another Ka-band satellite, iPSat, is scheduled to be launched this spring and will support broadband services in Asia.

Airline communications equipment vendor Row 44 says later this year it will test use of Ka-band satellites with its gear to provide in-flight high-speed Internet access.

Two more Ka-band satellites — Spaceway-1 and Spaceway-2 — to be launched this year by Hughes originally were intended for corporate data networks. But last year, DirecTV, which owns Hughes, announced it instead would use

Satellite calling

Satellite services are not for everyone. Here are a few issues to consider:

Pros

No wired connections needed.
Service is relatively inexpensive once installation fees are paid.
Can be bundled with satellite TV and in some cases phone service.

Cons

Expensive installation.
Built-in delay may be hard on some applications.
Asymmetric nature of the service may be unsuitable for some businesses.

them exclusively for high-definition, direct-to-the-home television broadcasts.

Also threatening to satellite use is WiMAX, high-bandwidth microwave access transmitted by Earth-bound antennas. At its best, WiMAX can send signals 30 miles with a maximum bandwidth of

75M bit/sec. Aperto and a few other vendors sell pre-standard WiMAX gear, but services still are limited and likely will stay so until a standard is set, Baugh says.

While the DirecTV move and the advent of WiMAX might represent blows to satellite use in corporate networks, it always has been tough to build a sound business case around VSAT, he says.

Businesses can buy DSL access for \$40 to \$200 per month, with one-time setup costs of a few hundred dollars. Satellite alternatives from Spacenet, the second-largest satellite provider, can provide services in that per-month range, but installation of VSAT dishes cost much more — \$1,500 to \$2,500 per site unless customers install gear themselves or lease it, a Spacenet spokesman says.

For some businesses, satellite remains a good choice for one or two remote sites that can't be reached by alternative access methods such as DSL, Spacenet says. In recognition of this, Spacenet also offers DSL access via a partnership with New Edge Networks.

In for a Dollar

Other businesses find that all-satellite is the way to go. Dollar General, a discount chain with 7,300 stores, opted four years ago to connect them all to corporate headquarters in Nashville via Spacenet's VSAT service. Previously, stores dialed up at the end of the day to upload sales and inventory data and download updates, says Bruce Ash, the chain's CIO.

Satellite was definitely less expensive than frame relay, Ash says, although he wouldn't reveal numbers. While less-expensive DSL might have been available to some stores, most are located in rural areas where DSL is unavailable. For those sites, satellite was the only possible dedicated access choice, he says.

Dollar General rejected using DSL at some sites and VSAT at the rest for the sake of simplicity. "We

didn't want to manage a network with multiple access methods," Ash says. Satellite signals are affected by weather — a snowstorm can break a connection — but so far interruptions have been minor for the company.

The network enables more applications, such as checks of credit and debit cards and food stamps, faster than dial-up did, he says. And he tested a Spacenet VoIP service that he might implement.

Because much of the voice traffic generated by stores is sent back to headquarters, using the VSAT connection for phone calls could save money, he says.

The path most traveled

Satellite signals must travel up to the satellites' 22,000-mile-high orbits and bounce back down to Earth, so they suffer a minimum of a quarter-second delay, which is noticeable in a voice call. But it sounds no worse than delay on some cell-phone calls, Ash says, which is good enough for talking to other company employees or checking voice mail. "When they listen to voice mail it doesn't matter if there's delay or not," he says.

Satellite voice quality is good enough that Net2Phone offers a VoIP-over-satellite service in Europe for small businesses looking for inexpensive international calling. It is available to customers that already buy Direcway satellite Internet access from Hughes. Hughes has not decided whether to offer the VoIP service in the U.S.

Bundling of other services such as voice and TV with satellite data networking could help promote the technology for corporate workers in home offices, Baugh says. "If you are a satellite TV subscriber, you might use satellite for data. But if not, it's probably unlikely you would choose a satellite circuit unless you can't get a DSL or cable connection," he says.

Satellite vendors are trying to push other uses of their services, such as a disaster-recovery application to be offered later this year by Spacenet. If customers' landlines die, the satellite will kick in and customers will pay only for the bandwidth they use.

But such uses are not likely to spark the dramatic growth providers hoped for last year, relegating satellite use to connecting hard-to-reach corporate branches. "The unserved user that has no other option is the absolute sweet spot," Baugh says. ■

Firetide unveils WLAN mesh net

HotPort mesh nodes improve throughput by two-thirds, company says.

■ BY JOHN COX

Firetide is releasing new wireless mesh hardware and software that lets users create a widespread wireless mesh Ethernet network that can handle data, voice and video.

Using the new HotPort 3000 indoor and outdoor mesh nodes, users can boost throughput by two-thirds and nearly triple the number of nodes in the network over the company's previous offerings, Firetide says. Specifically, the new CPU and the software changes increase maximum throughput from 15M to 18M bit/sec for the current 1500 line, and to 25M bit/sec for the 3000, though that depends on the application, distance from the node and other variables.

At the same time, users can create a mesh network with up to 50 nodes, which includes a mix of outdoor and indoor boxes. The largest network with the 1500 model had 18 nodes, according to Firetide executives. The larger network can cover a much wider area (although the exact coverage hinges on the radio frequency chosen, obstacles and other variables), support more users or both.

The Firetide nodes are essentially Ethernet switches that route traffic among themselves via radio signals. This eliminates the need to run Category 5 cable. Any of the devices normally found on a wired LAN such as video surveillance cameras, printers, laptops, wireless LAN access points and even servers, simply plug into the Firetide box via standard Ethernet ports. Traffic typically hops wirelessly through two or three nodes to one or more Firetide boxes that act as gateways to the wired Ethernet or Internet.

The HotPort 3103 indoor mesh node and the HotPort 3203 outdoor node incorporate a new CPU, an Intel XScale processor running at 530 MHz. The 3000 products also use Linux, rather than the FreeBSD

Unix variant on the 1500 line.

The 3103 has four 10/100M bit/sec Ethernet ports, and meets building-code requirements for deployment above drop ceilings.

The HotPort 3203 has an aluminum weatherproof enclosure, sun shield, two 10/100 Ethernet ports and two 6dBi omni-directional antennas. It can be fitted with a more sensitive 8dBi antenna. It supports IEEE 802.3af Power over Ethernet, meaning that it can send power to the Ethernet-attached devices or draw electrical power from them for its own use. Power options include a solar charger, and integrated battery for back-up power.

No change has been made in the dual-band radio chipset, from Atheros. Via software the 3000 nodes can be set to operate as either 2.4 GHz 802.11g (and 802.11b) or 5 GHz 802.11a radios.

Firetide made several changes in the systems software for the new products.

The mesh software now can search for the nearest gateway node, finding the fastest route out of the mesh to the wired network. Also new is QoS, by using the Ethernet class-of-service framework to assign different priorities to different types of traffic.

A third addition is support for virtual LANs, which lets net administrators segregate traffic so users on a given VLAN see only the traffic on that VLAN. Administrators can create VLANs on the mesh, or extend VLAN assignments on the wired network over the mesh.

Rivals in the mesh WLAN arena include BelAir, MeshDynamics, Nortel, Strix Systems and Tropics Networks.

The 3000 nodes support 128-bit Wired Equivalent Privacy encryption and the more powerful Advanced Encryption Standard.

Both products ship at the end of March. The indoor 3103 costs \$895, the same as the current model 1500 product introduced last November. The outdoor 3203 is \$2,000. ■



More online!

Breakthrough the analysis-paralysis about wireless at an upcoming Tech Tour event called "Wireless & Mobility: Commanding Broadband Everywhere."

DocFinder: 5837

FIPS

continued from page 7

called Open Security Exchange, which advocates open standards for dual-use access methods, says smart-card manufacturers are going to have to determine whether they'll need to develop new chipsets for FIPS 201.

FIPS 201 not aligned

However, NIST's FIPS 201 effort so far isn't aligned with the new smart-card standardization efforts underway at ANSI, the American national standards body that is chaired by NIST, or at the international level at ISO.

Teresa Schwarzhoff, smart-card program manager at the Department of Commerce, said NIST would try to work toward standards convergence, although it wasn't exactly clear how that would occur.

"Typically, you take two years to

Timetable for federal employee ID mandate

Aug. 27, 2004

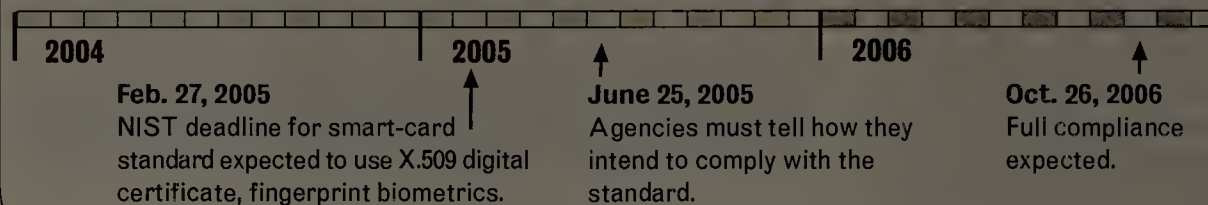
Presidential directive calls for common technology to ID those accessing federally controlled networks and buildings.

March, 2005

NIST expected to provide technical detail on smart cards and biometrics.

Oct. 27, 2005

Agencies must have some relevant procedures in place.



do a FIPS," she noted during her presentation at the RSA Conference. "We had six months."

Schwarzhoff said an inter-agency group called the Federal Identity Credentialing Committee is preparing to release what it calls the *Identity Management Handbook*, concurrent with FIPS 201, to help orient agencies.

Judith Spencer, chair of the fed-

eral PKI Steering Committee at the General Services Administration, says the government might pursue a shared-acquisition strategy so that small agencies can join with larger agencies on FIPS 201-based purchases.

Cost for the mandated smart-card credentials is a concern for many agencies. In comments to NIST last December, the Tennes-

see Valley Authority stated: "Because [our] fiscal year '05 budget has already been approved, it will be very difficult to change" it to pay for FIPS 201 activities. It asked NIST to go slow on what it expects agencies to accomplish by October, which is the deadline the president set for at least some procedures related to dual-use smart cards to be in place. ■

Gordano adds Windows-based IM client

Messaging vendor aims to capture users of aging Exchange 5.5 systems.

■ BY JOHN FONTANA

Messaging vendor Gordano this week is scheduled to add a Windows-based instant-messaging client to its suite of collaboration software that lets customers keep their Outlook front ends while replacing their Exchange infrastructure.

The IM client works with the Instant Messenger module of the company's Gordano Messaging Server (GMS). The client adds a pair of drop-down menus to Outlook that give users the ability to send instant messages from a separate message box that pops up on screen. The client also supports the sending of pager messages, and the sending and receiving of Short Message Service messages from the desktop to mobile phones. Return messages are converted to e-mail and delivered to the user's in-box.

Gordano's current IM client is an entirely separate application

and is written in Java. The new client is integrated directly into Outlook using Microsoft's APIs. This is the latest step in Gordano's year-long effort to align Outlook with GMS.

"It is nice to have everything in one package with GMS," says Justin Graf, IT director of Empro Manufacturing, an Indianapolis company that makes electrical resistors used mostly in telecom. "I don't have to run multiple vendors' products, like Symantec's anti-virus, someone else's spam or filtering tools." Graf deployed GMS instead of Exchange last year to avoid what he called administrative headaches with the Microsoft server.

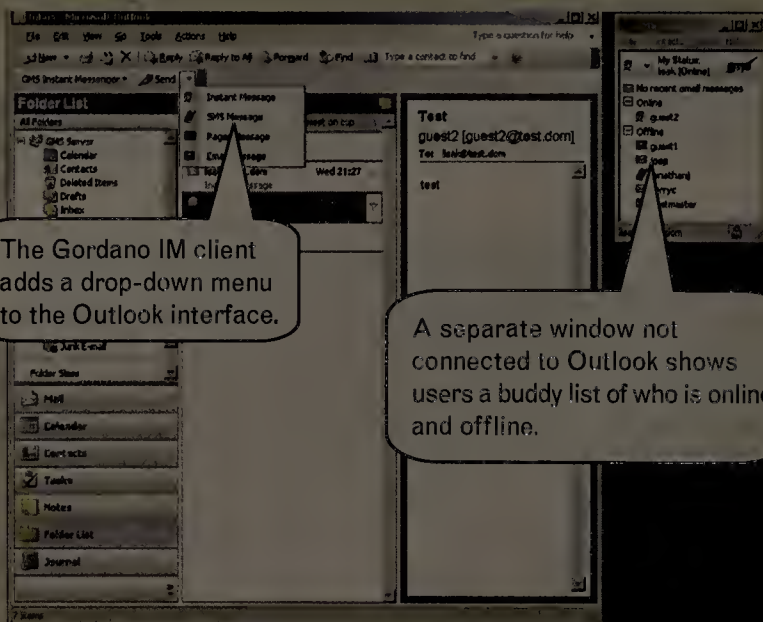
Gordano — and other vendors such as Stalker, Rockcliff, Mirapoint, Scalix, IPSwitch and Sendmail — have targeted users of Microsoft's aging Exchange 5.5. Those users still make up 30% of the Exchange installed base, according to Microsoft, which late last year extended fee-based support for Exchange 5.5 until December 2005.

While Microsoft hopes to convert those users to Exchange 2003, vendors such as Gordano see Outlook support as a way for administrators to swap out back-end servers without disrupting the familiar client interface.

The GMS Instant Messenger includes a content-checking fea-

Instant messaging

Gordano has added a Windows-based instant-messaging client to its collaboration suite and integrated it with Microsoft's Outlook client.



ture to ensure IM messages adhere to corporate messaging policies, and is integrated with GMS features that support archival and retrieval to aid in regulatory compliance. All server traffic is protected using SSL encryption.

Gordano's IM support is for internal IM only and does not integrate with public services such as AOL, MSN or Yahoo.

The company also has added anti-spam enhancements, includ-

ing scoring of restricted words to fine-tune blocking and the ability for a server to receive automatic anti-spam updates.

GMS also runs cross platform and supports Windows NT, XP, 2000 and 2003; Solaris; AIX, and various Linux versions, including Red Hat, Novell, Mandrake and Debian.

The GMS IM module is priced at about \$1 per user for 10,000 users. ■

Correction

■ In the story "Cutting the cord on thin clients" (Feb. 21, page 20), a product name should have been listed as 9455XL.

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Site: Lessons from Leading Users

Dartmouth retools for Wi-Fi video

■ BY TIM GREENE

Dartmouth College has embraced Wi-Fi for data so enthusiastically that the school's IT chief is leaping into voice and video over Wi-Fi. A venture that calls for tripling the number of access points on campus, swapping out old wireless gear for smarter equipment and partnering with a start-up that is still putting the finishing touches on its technology.

With video set to go into production in April, the Hanover, N.H., school is beefing up its Wi-Fi network to support four channels of educational video, says Brad Noblet, director of technical services for the college. "We have a little over 600 access points today covering 150 buildings in a mile square. I'm going to come close to tripling that in order to increase the amount of bandwidth so I can deliver video and handle a number of concurrent VoIP telephone conversations."

The current Wi-Fi network, based on Cisco gear, is used primarily for e-mail, instant messaging and Web surfing, he says, but the school has greater needs.

"A lot of the faculty feel like to capture the attention of their students, they have to do more than just stand there and talk," he says. That means adding video presen-

tations as part of the curriculum.

Ideally that would mean student laptop access to audio, video and data in classrooms, but that would require an Ethernet jack at each desk, a huge infrastructure upgrade. "We want to take four channels for teaching and learning and make those available on wireless as well as wired so we can again have this mobile classroom effect," Noblet says. "You don't need a smart classroom." The new wireless gear will support existing data applications and Internet access.

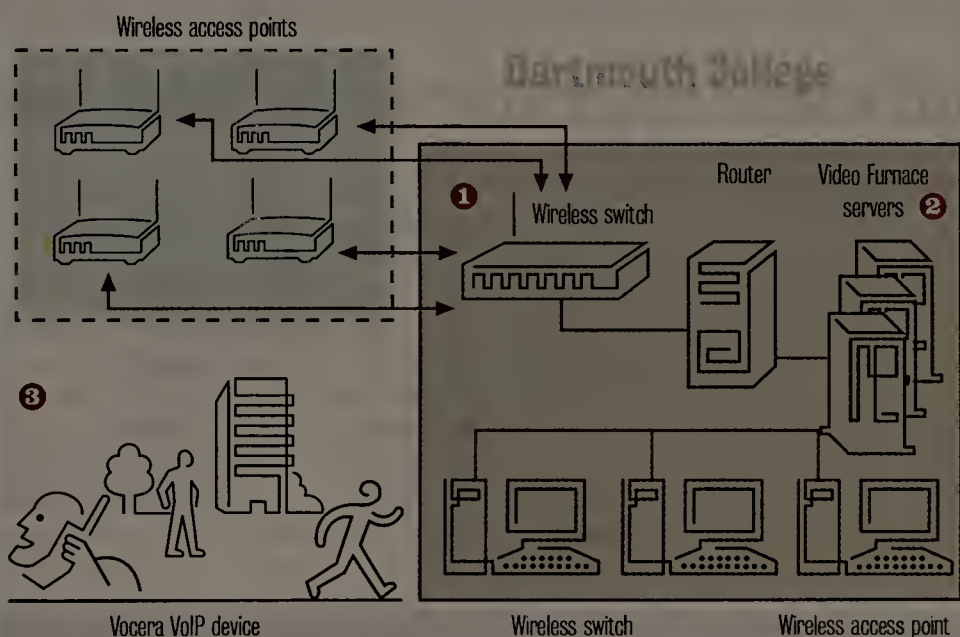
The school has teamed up with Video Furnace, a start-up that multicasts video to laptops using client software agents downloaded to PCs when users select the encrypted videostreams they want. The company supports Macintosh, Linux and Windows operating systems, all of which are used on campus. In addition to supporting the educational streams, Video Furnace also will deliver commercial cable TV to the campus over Dartmouth's converged wired IP network, Noblet says.

Because each computer needs 400K to 2M bit/sec of bandwidth to screen video content (depending on screen size and resolution), efficient use of bandwidth is key.

See Dartmouth, page 20

Video strains Wi-Fi

Dartmouth College is tripling the density of its Wi-Fi access points to support video, and it is installing smart switches that load balance access and adjust signals to maximize coverage area.



- 1 Aruba switches in high-use areas such as dorms load balance access requests to make the most efficient use of access points and adjust transmission power to maximize coverage area.
- 2 Video Furnace servers download client software to PCs that have authenticated and multicast video.
- 3 The locations of users with Vocera VoIP devices can be determined via the wireless switches. In the future, servers will be able to send users information, such as when not to use equipment located in a given room.

Short Takes

■ **3Com** is adding a filtering service to its router and firewall products for small-business networks. Users now can add a \$99 monthly service from **SurfControl**, an e-mail and Web content filtering company. The service lets users create settings for blocking incoming spam and outgoing access to unauthorized sites. Products supporting this service include the 3Com OfficeConnect VPN Firewall, the OfficeConnect Router and Wireless 11g Cable/DSL Router.

■ BY TIM GREENE

Packeteer is introducing a WAN-optimizing appliance for businesses that could trigger a price war among vendors of such gear.

Called Packetseeker 1200, the device was designed to be deployed in large numbers of branch offices, giving better performance to WAN traffic as an alternative to companies buying more bandwidth.

Pricing for Packetseeker 1200, including compression, ranges from \$2,400 to \$3,200, depending on the size link it is licensed to support, either 128K, 512K or 2M bit/sec. This is significantly different pricing from competitors Expand Networks and Peribit

Networks, whose 2M-bit/sec devices cost more than twice as much, says Gerald Murphy, director of infrastructure strategies for Meta Group. For example, Expand's Accelerator 4800 2M-bit/sec device costs \$9,500.

The 1200 device is based on Packeteer 1550 hardware but with performance trimmed to achieve the lower price.

Murphy predicts other vendors will drop their higher-end prices because the savings customers can reap by buying the Packeteer devices will override whether it actually boosts performance as well as some other vendors' boxes.

This type of appliance sits at either end of WAN links and performs a series of functions on traffic to get more of it to flow over

a fixed-size link and to give priority to important applications. But no two vendors' devices are exactly the same. For example, two vendors might both use compression but use different compression algorithms. Or they might use different mixes of compression, traffic shaping, queuing, caching and rate control to boost performance, but not use the same combinations of these methods.

Customers must test the products to see which one makes the most improvements to their particular traffic mixes.

Packeteer 1200 can distinguish 16 classes of traffic and create 32 bandwidth policies to determine which classes get how much of the available bandwidth.

Packeteer device could set off price war

Site: Lessons from Leading Users**Dartmouth**

continued from page 19

Bandwidth for 802.11a is provided at 55M bit/sec using its own radio frequency. 802.11b supports 11M bit/sec, and 802.11g supports 55M bit/sec, but 802.11b and 802.11g share the same frequency. If an 802.11b device associates with an access point, the access point drops down to 11M bit/sec for 802.11g users.

That led Noblet to choose 802.11a. "I'm going to be able to get on the order of 20 to 25 streams per access point," he says.

Noblet is packing access points in high density for areas such as dorms that are likely to have large numbers of users, to ensure coverage during peak times. He is swapping out Cisco access points for Aruba Wireless Networks access points

because Aruba supports intelligent switching. "Cisco was not in that game" when he started the project, he says.

The intelligence he wants includes Aruba wireless switches' ability to load balance requests from laptops. In an area with overlapping access points, the switches send messages that force laptops to less-busy access points to maximize the number of users associated with the wireless network.

The switches also adjust power of access point transmissions to maximize the area in which wireless devices can get a signal.

The intelligent switches, in combination with mapping tools, also make it easier to install access points effectively. "The wireless switch can force access points to signal one another so they can get an indication of who can hear who and develop a coverage map that gets plotted graphi-

cally on a screen," Noblet says. Using that map, technicians installing access points can see where more access points are needed. "When we put up the original 600 access points, it damn near killed us to do it manually," he says.

The tool plots Wi-Fi coverage on architectural drawings of buildings. "So I can see how's my coverage in this given building and be able to pinpoint where I need to move an access point or maybe I need to add an additional access point," he says.

Noblet spent a lot of time with Aruba developing location-sensing tools to go along with the switches. Now the switches can tell him the rough location of a wireless device associated with the network, and this can help run the campus more efficiently.

For instance, a student on an unstaffed floor of the library who is wearing a VoIP communicator badge made by Vocera

could ask, "Where are the Shakespeare folios located?" Voice recognition software would translate the question and deliver an automated voice response to tell the student where the folios are in relation to where the questioner is standing.

Similarly, students with laptops in a lab could query a server how to use the piece of lab gear sitting in front of them, and the server could respond with a Web page containing a user manual.

The video project should also increase use of VoIP over Wi-Fi. Most Wi-Fi VoIP phones employ 802.11b, which supports only eight concurrent VoIP calls. More access points means support for more VoIP, Noblet says, which should help accelerate the college's migration to VoIP. So far about 4,000 of 7,000 phone lines have been converted to VoIP, but only a few hundred of those today are Wi-Fi, he says. ■

Software upgrade adds WAN load balancing to Foundry switches

■ BY PHIL HOCHMUTH

A software upgrade for Foundry Networks' ServerIronXL can let users simplify WAN and Internet connection links, configure failover connections and allocate bandwidth for specific applications running over an IP WAN.

Foundry says its TrafficWorks Link Load Balancer software for the ServerIronXL switch can streamline how a business con-

nects to multiple ISPs or carriers by simplifying the management of bandwidth on multiple WAN links.

The company says the TrafficWorks Link Load Balancer software on the ServerIronXL can be used instead of running Border Gateway Protocol Version 4 (BGP-4) on enterprise WAN routers. This protocol is used in large business IP networks and carrier networks to handle multiple connections to different service providers. Foundry

says that users can manage multiple WAN links more easily by installing a ServerIronXL with TrafficWorks next to a router, instead of configuring the router to run BGP-4, which requires an IT staff with advanced Internet protocols knowledge.

The ServerIronXL adds features not supported in BGP-4, including bandwidth optimization and network health checking, which lets the device send traffic around congested or downed links, Foundry says.

Its ServerIronXL switches have traditionally been deployed in data centers for server load balancing. A ServerIronXL with Link Load Balancer capabilities would be deployed behind a WAN router, connecting through a 10/100/1000M bit/sec Ethernet port. When processing WAN traffic, the device can handle up to 300M bit/sec of throughput—the equivalent of six T-3 links.

ServerIronXL switches also can provide

See Foundry, page 21

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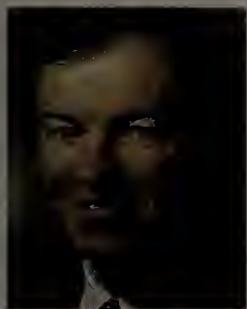
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TOLLY ON TECHNOLOGY

Kevin Tolly



Like most things in technology, VoIP was talked about for years before it became a part of the enterprise mainstream. The opposite, it seems, is the case with VoIP services. While Vonage and Net2-Phone have been around for a few years, of late they and their competitors have been blasted into public view advertising like mad around the Web, as well as on traditional media such as TV. And soon, they'll go after you.

While VoIP services have been targeted at the mass consumer market, many of the companies have rapidly expanded their purview to include "business-class" services. So ready or not, you'll be hearing from them.

Who are these companies and what are the services they offer? Well, the list reads like one of those many ancestry sections of the Bible, but you might as well get a feel for the onslaught. For many of these companies, the service and the company names are identical. So I'll only list the vendor (in parenthesis) where the two differ — in the official order they were stumbled upon by yours truly.

Prepare to grapple with Vonage, Lingo (Primus), Skype, Net2Phone, Packet8 (8x8), SIPphone, CallVantage (AT&T), VoiceWing (Verizon), BroadVoice, VoicePulse. Even

Girding for the VoIP services onslaught

vendors that traditionally have focused on selling hardware have gotten into the fray — Belkin is offering a VoIP service under the callEverywhere brand.

And there are many more. A quick search while writing this piece brought me links to VoIPWorX, Dialpad, FWD, Covad — it goes on and on. (I apologize in advance to the myriad companies I've failed to mention.)

The services are what you might expect: the ability to make and receive calls using your broadband Internet connection. Most of the services have pretty impressive lists of advanced options, including voice mail, conference calling, find me and integrated fax support.

What do they want from you? For starters, they'll take your small remote offices. You know, the ones that look remarkably like the homes they're targeting already. For these sites that don't have a physical PBX, they provide, in essence, a virtual PBX replete with all the advanced functions you'd expect.

Their arguments are compelling financially. At a minimum, your smallest one-person office is likely running telco services that consist of a broadband connection, at least one voice trunk and a fax number. Monthly connection charges can be pushing \$75 with usage layered on top of that.

Using a VoIP service, you can, for example, get 500 minutes of U.S. and Canada calls for a total of \$14.99 per month. Adding a fax line bumps it up \$10. Pretty impressive.

In the past, a major disincentive to move services would be the implicit cost of hav-

ing all your contacts need to reach you at a new number. And along with that, the need to update stationery, Web pages, business cards and so forth. Now that you can take your number with you, a major stumbling block is removed.

About the only thing that you can't get with these new VoIP services is your traditional enhanced 911 service. It exists, but with caveats. You have to register the physical location of your phone (and re-register if and when you move it) so the authorities know where to dispatch help; and, obvi-

ously, if your broadband is down, your E911 vanishes.

We've already started benchmarking voice quality of a number of these services and, overall, the results are impressive (read the report at www.nwfusion.com, DocFinder: 6087). Services are probably in your future.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Boca Raton, Fla. He can be reached at ktolly@tolly.com.

Foundry

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denial-of-service attack blocking, by recognizing spikes in TCP traffic messages and shutting down suspicious flows.

Foundry had focused mostly on LAN edge and core products, with its ServerIron, FastIron and BigIron Gigabit Ethernet switches. The addition of WAN traffic management to the ServerIronXL is another step toward the enterprise edge; last year,

Foundry introduced its first WAN routers to challenge Cisco's 2600 and 3600 series products. With its traffic-managing box, Foundry competes with Allot, DeepNines, Expand Networks, Packeteer and Peribit Networks. In the Layer 4-7 market, Foundry's ServerIronXL competes with offerings from Cisco, F5 Networks, NetScaler, Nortel, Redline and Radware.

Layer 4-7 switching was at its zenith dur-

ing the dot-com bubble, as Internet companies spent money on gear to make Web sites more accessible. But since the bubble's burst, Layer 4-7 vendors have looked for other ways to apply their deep-packet forwarding technology, such as security, VoIP prioritization and now WAN optimization.

"That whole [Layer 4-7] market never really took off as much as it had been hyped," says Max Flisi, an analyst with IDC. "But it never really went away, either."

Flisi says that the application Layer 4-7 technology to new areas in a network is part of a trend toward adding more intelligence to routers and switches. "It's another example of the network layer becoming more intelligent," he says.

The TrafficWorks Link Load Balancer software is available as a free upgrade for ServerIronXL users with support contracts. ServerIronXL switches start at \$9,000. ■

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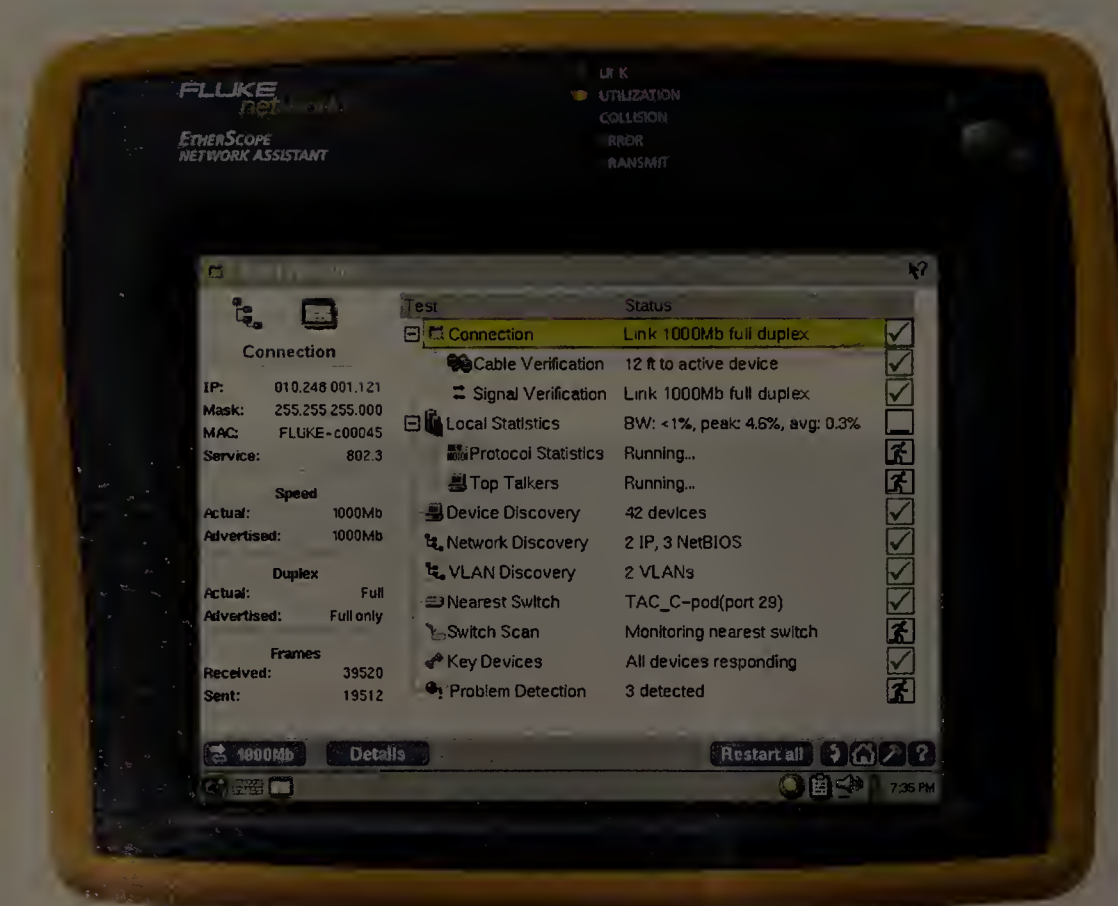
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IBM strengthens storage mgmt. line

■ BY DENI CONNOR

IBM has upgraded its tape and disk systems and its storage management software to help customers more efficiently handle data from creation to deletion.

Such offerings are commonly referred to as making up an information life-cycle management (ILM) system, in which data can be stored on systems that make the most sense from a speed and price standpoint, depending on the nature of the data.

IBM's ILM strategy, while similar to those from EMC and HP, is only part of the company's on-demand computing vision, in which resources can be dynamically shifted and allocated according to need.

The company is incorporating the latest Linear Tape Open 3 technology into its tape drives, libraries and autoloaders, enabling media to be read by any LTO-compatible drive from HP, IBM or Quantum. IBM says its Ultrium LTO 3-enabled libraries, which run at up to 80M byte/sec, have dou-

ble the performance and capacity of earlier LTO 2 offerings. IBM also has introduced a dual-robotics feature for its TotalStorage 3584 tape library that doubles the tape mount performance.

On the disk front, IBM announced that its DS4000 subsystem now uses 146G-byte, 15,000-rpm and 300G-byte, 10,000-rpm Fibre Channel disk drives for total capacity of more than 67T bytes in a midrange storage system. This lets customers choose faster drives for their business-critical data and slower, higher-capacity drives for less-important or archival data.

To enable more control of storage environments, IBM announced Version 2.1 of its TotalStorage SAN Volume Controller, which includes a migration capability that lets data be moved between disk arrays from different vendors.

Chuck Long, SAN administrator for Safelite Autoglass in Columbus, Ohio, has used the software to migrate data from one IBM storage array to another.

"We migrated 2T bytes in an hour and a half," Long says. "Nobody [on the network] had any idea it was being done. It would've taken late into the night before."

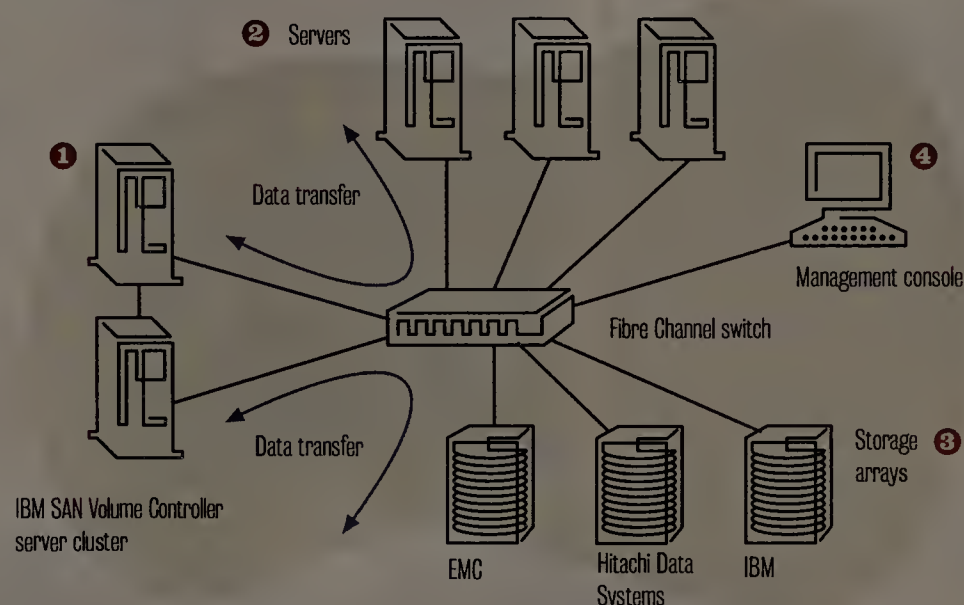
Long, who has virtualized about two-thirds of his storage environment, has several IBM Enterprise Storage Servers as well as DS4300 and DS4400 midrange arrays.

SAN Volume Controller 2.1 also can pool data on Sun StorEdge 9910, 9960, 9970 and 9980 arrays. It is priced on a per-terabyte basis. Users pay for only the number of terabytes they virtualize.

SAN Volume Controller supports a form of symmetrical virtualization in which all data from host computers or storage systems passes through it, where it can control the

Smarter storage

IBM's SAN Volume Controller 2.1, which comes in the form of a two-node cluster of x335 Xeon servers and management console software, is designed to help companies easily retrieve data, regardless of where they store it.



1 The SAN Volume Controller can tap multiple storage arrays and offer capacity to servers in the form of a virtual disk.

2 Any server can retrieve data from this virtual pool without needing to know where the data physically resides.

3 Different brands and classes of storage systems can contribute to the virtual data pool.

4 Policies, such as how data is pooled or copied for disaster-recovery purposes, are set from the management console.

actions, such as Flashcopy or Peer-to-Peer Remote Copy, that are taken on the data.

The software, which is implemented on a clustered pair of xSeries 335 servers running Linux or on Cisco's MDS9000 Fibre Channel director-level switches, works with Windows, AIX, Red Hat Linux, Solaris and HP-UX hosts. It works with storage arrays from IBM, Hitachi Data

Systems, EMC, HP and Sun.

TotalStorage tape drives, libraries and autoloaders with LTO 3 are expected to be available in March starting at \$6,000. The IBM TotalStorage DS4000 Series is expected in April, but pricing has not been announced. The TotalStorage SAN Volume Controller 2.1 is expected in March, starting at \$47,000. ■

Short Takes

■ **NeoPath Networks**, a maker of network file management products, has named Alan Baratz its president and CEO. Baratz has recently been involved in private equity research and has led a few small technology companies, including collaboration company Zaplet. Earlier, he headed Sun's Software Products and Platforms division.

■ **Intel** says it plans to unveil technology for improving the transfer of data from clients to server-based applications at its developer forum during the first week of March. The **I/O Acceleration Technology** includes software enhancements to the TCP/IP stack and new network controllers. The combination lets a processor take on more of the I/O tasks when otherwise it would have sat idle waiting for the network controller to move data along, Intel says. Intel server processors and chipsets with the technology are scheduled to be available next year.

Intel-based servers get IBM revamp

■ BY ROBERT MCMILLAN

IBM last week announced a computer system architecture and chipset that will form the basis of the next generation of the company's xSeries servers.

IBM says it plans to ship the first server based on these new technologies, a four-processor system called the xSeries 366 (x366), in the next few months. The system, which will run operating system software from Microsoft, Red Hat and others, will start at less than \$7,000, IBM says.

Using technologies from IBM's mainframe and supercomputer businesses, the x3 architecture is designed to improve the performance of Intel's Xeon processors. It has been three years in development and is the latest generation of the Enterprise X-Architecture, which IBM introduced in 2001. IBM has invested more than \$100 million in x3's development, it said in a statement, and will use the architecture as the basis of future Xeon systems with four or more processors.

IBM also is introducing an XA-64e

chipset, code-named Hurricane, that has been designed for the x3 architecture. With these components, IBM says it will be able to build Xeon servers with as many as 32 processors. The servers will support Intel's dual-core processors, due next year.

IBM's xSeries 366 servers are optimized to run applications such as 32- and 64-bit databases. The systems will compete with servers from Dell, HP and others.

McMillan is a correspondent with IDG News Service.



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TEST

Operating systems

Solaris 10 heads for Linux territory

■ BY THOMAS HENDERSON, NETWORK WORLD LAB ALLIANCE

Sun is gunning for some of Linux's rising popularity in the enterprise with the newest release of its Unix derivative, Solaris. In this Clear Choice Test, we found that Solaris 10 has been torn from its SPARC-only roots now runs very quickly and very easily on generic 32-bit x86 Intel- and 64-bit Advanced Micro Devices-based servers. It also has new security features and supports a range of Linux applications. And it's free.

Solaris 10 has a variety of installation options, ranging from an everything-but-the-kitchen-sink option that includes OEM add-ons to a developers' option to a slim "networking" install. Most enterprise deployments would likely require a developer grouping for the initial installation because it contains necessary compilers, applications and development tools.

We installed Solaris 10 on all 10 of the 32-bit and 64-bit servers in our labs with only very minor problems. These servers ranged from Sun's own AMD64-based V20z box to an HP-Compaq server with dual 733-MHz Pentium III processors. In our tests, the operating system chose the most appropriate drivers for the components in these disparate servers with only minor exceptions.

Solaris 10 has a look and feel that's similar to Solaris 9's. Both the Gnome-based Common Development Environment and Java Desktop System user interfaces are offered. The Sun Management Console — which can be invoked from either interface — controls users, groups, projects and system resources. However, this console doesn't support applications needed to manage all of the functional-

ty of Solaris 10. For example, to run encryption services or gather detailed disk and file information, you must use a command-line interface.

Commercial Linux distributors have learned how to manage the myriad administrative options needed in a server operating system through GUI interfaces.

Solaris 10 supports directory services such as Network Information System + and those based on Lightweight Directory Access Protocol. Even though Sun also provides Samba, the open source Microsoft Windows connectivity method, it offers no official support for it and only scant documentation. All three services' implementations worked acceptably well.

Solaris 10 is as fast as its Linux competition (see performance charts at www.nwfusion.com, DocFinder: 6088). The numbers posted by Solaris 10 and RedHat Enterprise Linux AS 4.0 in our series of Web transactional tests, in which both were running Apache 2.0.3 on the same Polywell 64-bit server, were very close across the board. We did find that Solaris had a small performance advantage when tested on Sun's own V20z box.

Addressing security

Solaris, since the release of Version 8, has supported role-based access controls via its Role Based Access Control (RBAC) mechanism. These Unix-based hierarchical roles — ranging from a lowly user or file to root-level rights that give a user or application full access to system resources — can be extended to users and application behavior.

RBAC provides a method of setting up how those roles interact with other system resources to prevent an application or users from reaching out to use resources they are not entitled to use. This feature is similar to the security features of Red Hat's SELinux implementation (see Red Hat Enterprise Linux test, DocFinder: 6082).

These RBAC role-based groupings can serve as the basis of a new security feature within Solaris 10, referred to as containers. Containers are objects that comprise users, applications and processes logically grouped to create virtual work-

spaces; or in Solaris 10 terms, projects on the same physical server. Projects map to the Linux Virtual Machines seen in SLES9. These virtual workspaces eschew the overhead of full server virtualization products, including VMWare GSX.

Containers boost overall system security because they isolate project instances from scrutiny by other processes, and add fault tolerance by isolating processes from each other so if one project fails, it doesn't bring down the rest of the system.

Solaris 10 provides a flexible background for securely dividing system resources, providing performance guarantees and tracking usage for these containers. Creating basic containers and populating them with user applications and resources is simple. But some cases may require quite a bit of fine-tuning.

Once initial container characteristics are defined, they can be replicated to create multiple instances of like containers. It's also possible to change the behavior of containers on the fly to tune and reallocate resources. Tuning was tedious; and although we saw our results immediately, the procedure can be daunting.

To monitor the activity of the containers (as well as other system services and applications), Solaris 10 has a tool called Dynamic Tracing (DTrace). We found that

the modules and device calls that registered with DTrace produced a stunningly long and detailed list of information that we subsequently filtered to look at specific calls, such as disk and memory requests. The tool didn't appear to detract from performance, and the devil with DTrace is in its details — lots of it.

Sun recommends using Perl scripts to develop the accounting reports needed to keep track of containers, but we'd prefer to see a reporting module that plugs into the operating system that automatically tracks that information.

In terms of other security features, Sun has an automated patch management process that can update system software without attendance.

Overall, Solaris is a time-proven Unix platform, with a long legacy of stability and reliability. Solaris 10 has been tweaked for speed on generic PC-based hardware, and its new container methods show clear attention to security details. The price is certainly right for the capital cost of the product — it's free. What's not free is the training needed to make many of the components of Solaris 10 sing.

Henderson is principal researcher for ExtremeLabs in Indianapolis. He can be reached at thenderson@extremelabs.com.

Net Results

Solaris 10

OVERALL RATING
4.0

Company: Sun, www.sun.com **Cost:** Operating system software is free.
Pros: Good performance; excellent hardware detection; detailed security features. **Con:** Lacks competitive GUI management features.

The breakdown

Installation/Integration 25%	4.5
Performance 25%	4.5
Management/administration 25%	3.0
Security 25%	4.0
TOTAL SCORE	4.0

Scoring Key: 5: Exceptional; 4: Very good; 3: Average; 2: Below average; 1: Consistently subpar

How We Did It

We tested Solaris 10 final, downloaded from the SunStore site. We installed it on nine different platforms: Sun SunFire V20z (two 2.5GHz AMD64 Opteron CPUs); Polywell 2200S (two 2.5GHz AMD64 CPUs); HP DL360-G2 (two 3.06-GHz Xeon CPUs), HP DL580-G3 (four 2.5-GHz Xeon CPUs), NetFrame 1600 (two 3-GHz Xeon CPUs), Dell PowerEdge 1850 (one 3-GHz Xeon CPU), Compaq DL-380 (two 733-MHz Pentium IV CPUs), and a 'whitebox' server (one 2.6-GHz AMD 64 CPU).

We tested Solaris 10 on a network consisting of a Gigabit Ethernet switched backbone and checked logon compatibility with the following server operating systems: Windows 2003 Enterprise Edition, Apple OpenDarwin OS/X 10.3, Red Hat Linux Enterprise 3.0, Red Hat Enterprise Linux 4 Advanced Server, NetWare 6.5, NetBSD 1.6.0, and Windows NT Server 4.0. We tested for client logon compatibility with Apple OS/X clients, Windows XP/2000/98SE clients and Linux clients running Mandrake 9, Xandros 3 and Debian Sarge.

We used Spirent Communications' WebAvalanche benchmarks. The results are an average of five test cycles that are within a 5% margin of error. We ran tests of transactions per second, the maximum number of TCP connections per second and the maximum number of open TCP connections per second. We ran Solaris 10 in 64-bit mode on both Sun SunFire V20z and the Polywell 2200S. We also tested in 32-bit mode.

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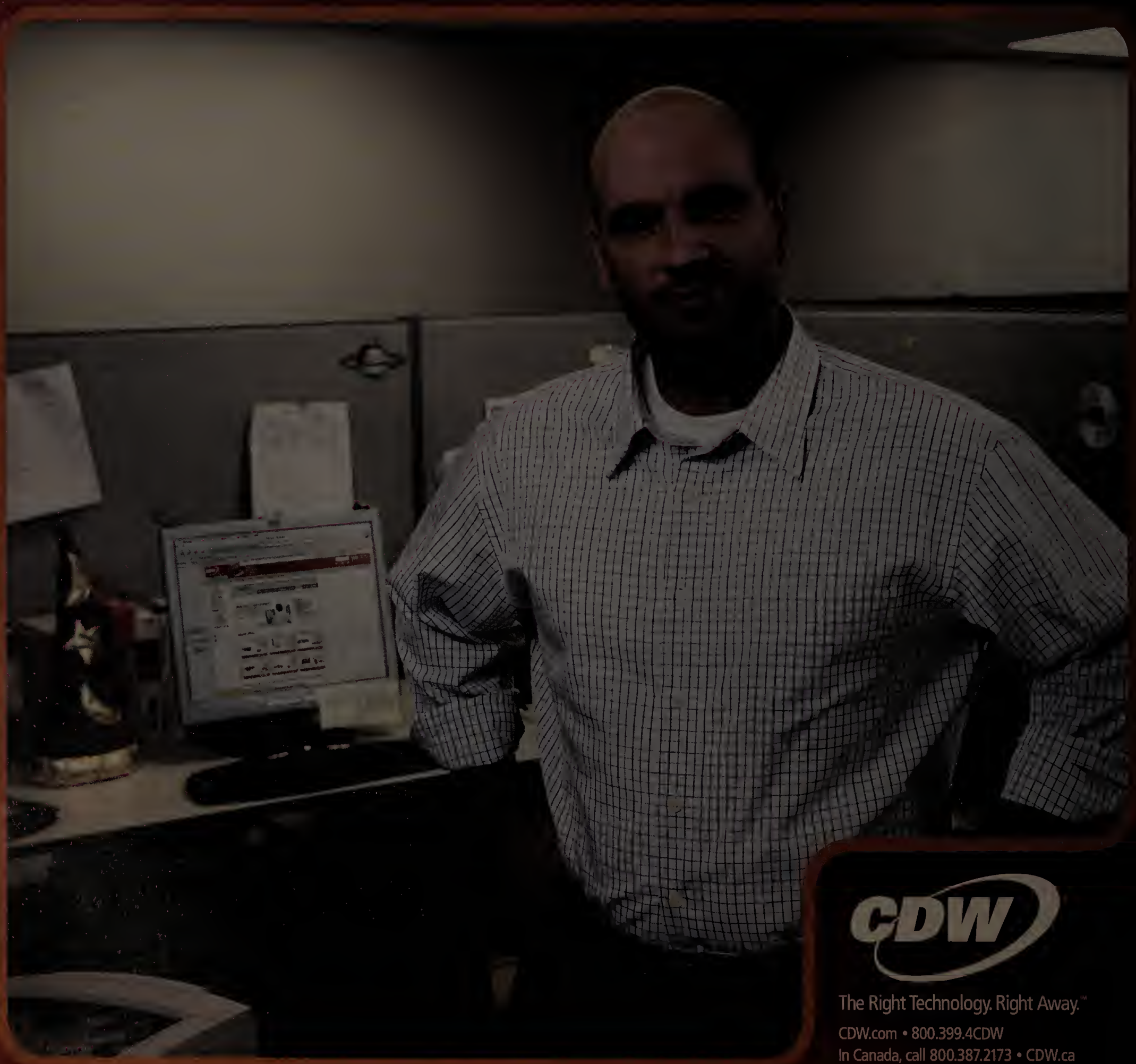
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IBM expanding Workplace realm

■ BY JOHN FONTANA

While IBM/Lotus has assured users that Notes/Domino has a future, it also has made it clear that the company's Workplace strategy is its next-generation platform.

Last month at the company's annual Lotusphere conference, Notes/Domino was given its due, which included a road map that stretches out for another two upgrades and likely beyond. But there was no doubt that the ship is turning toward Workplace, which is both a company "vision" of the future and the brand for a growing cache of products.

Workplace is the IBM Software Group's Herculean effort to marry business process automation and collaboration, and grow its user base from 118 million Notes/Domino faithful to more than 200 million Workplace believers.

But what the company has to do now is

clearly define what Workplace is and how companies build it, experts say.

At Lotusphere, the focus naturally was from the Notes/Domino angle as IBM laid out new Workplace software upgrades, development tools and client interfaces. This was all done with an emphasis on calming the jitters of Notes/Domino users by assuring them Notes/Domino coexists with Workplace.

"Right now the battle for Lotus is to hold onto its install base and try to get them excited about Workplace," says Matt Cain, senior vice president at Meta Group. "My sense is that the Notes/Domino user base will be unwilling to move until they see real positive proof that they will not lose anything by going to the Workplace platform."

Defining Workplace

First, users will have to understand that Workplace is broader than just a next-generation Notes/Domino.

"Workplace is about a brand we are trying to establish, and the promise of the brand is transforming the way people work," says Akiba Saeedi, manager for IBM Workplace collaboration products. "In order to fulfill that promise, a customer may use multiple components for their environment. They may use products, solutions, and they may use tools and technology that we sell." (See graphic.)

On one hand, Workplace is IBM's service-oriented architecture for collaboration, which is a dramatic turn from nearly two years ago when the company introduced its first Workplace component, Workplace Messaging, as a niche product to provide

The lineup card

IBM's Workplace is not only the name for a next generation of collaboration products but a slew of other technology that falls under its banner.

Workplace offerings	Description
Corporate Software	
IBM Workplace Collaboration Services	All-in-one collaboration server with per-processor pricing.
Lotus Notes/Domino	The classic Lotus platform.
WebSphere Portal	Classic portal and key companion for Workplace Client Technology.
WebSphere Everyplace	Support for remote and wireless access.
Tools and Technology	
Workplace Client Technology	Framework that provides interface on many devices for server-hosted applications.
Workplace Builder	A template editor to customize preconfigured Workplace applications.
Workplace Designer	Just introduced Eclipse-based development tool similar to Domino Designer.
Lotus Domino Designer	Provides form, views, XML and Java for building collaborative applications.

SOURCE: IBM/LOTUS

simple e-mail.

Workplace is used to define much of the technology that IBM develops for so-called information or knowledge workers, which include servers built on WebSphere such as Portal, Collaboration Services, and Web Content Management. It also includes Notes/Domino. It encompasses development tools, application components such as team workspaces and presence, and the Workplace Client Technology — a

full-featured, browser-based client built on the open source Eclipse Framework.

But Workplace also is a generic term used to sell non-techies on the business process benefits of the strategy and to frame the next battlefield with Microsoft.

At Lotusphere, IBM held a conference within a conference called Workplace Forum, where Workplace was sold to corporate executives as a strategy for structuring

See Workplace, page 30

Short Takes

■ **BEA Systems** last week said it plans to join **Eclipse Foundation**, the open source tools project IBM backed. BEA joins Eclipse as a board member and strategic developer partner — a commitment that will cost the vendor about \$1.5 million per year in code and development man-hours. As one of its initial Eclipse responsibilities, BEA will jointly take the lead on the Web Tools Platform project, which will create infrastructure tools to support Java 2 Platform Enterprise Edition and Web-enabled application development. BEA also announced the next version of its own WebLogic Workshop integrated development environment, code-named Daybreak, which will support the Eclipse framework. Eclipse offers a royalty-free platform for integrating software development tools. Its plug-in-based framework is designed to make it easier for customers to create and use software tools in multi-platform and multi-vendor environments. Microsoft and Sun remain the most prominent Eclipse holdouts.

Start-up unveils configuration mgmt. tool

■ BY DENISE DUBIE

Customers looking to automate the discovery, collection and maintenance of configuration data across their application infrastructure might be interested in a new product available from management start-up Tideway Systems.

Tideway, launched in the U.K. in 2002 and headed by former Orchestream CEO Richard Muirhead, last week made its U.S. debut by introducing its Foundation product. The Foundation 4.6 appliance sits in a data center and is plugged into the network, from where it discovers application configurations across a data center and

maintains a database of blueprints, and tracks changes. Foundation uses agentless collection methods, querying servers and other devices for configuration information.

Tideway executives say the product, which comes as an appliance pre-loaded with the company's proprietary software, can be used to collect data and serve as a configuration management database (CMDB) for large enterprise networks.

U.S. companies and vendors started paying closer attention to the benefits of a CMDB last year as the Information Technology Infrastructure Library (ITIL) grew more popular. While ITIL already had

detailed the concept of a centralized CMDB, vendors had yet to deliver products. As recently as last month, products started to emerge from management heavyweights BMC and Computer Associates, asset management software makers such as Altiris and Peregrine Systems, and a crop of new vendors — Collation, mValent, Relicore and Troux — dedicated solely to tracking application configuration.

"The implementation of a CMDB is at the core of configuration management," says Jean-Pierre Garbani, an analyst at Forrester Research. A CMDB stores details of the application and infrastructure components.

See Tideway, page 30

'NET
INSIDERScott
Bradner

I hope by now ChoicePoint has made enough dumb decisions to ensure that we get some useful national mandates that require reasonable protection for data about people. Or I hope we at least get requirements to tell us when some company holding such information screws up.

For those who didn't see the news coverage, ChoicePoint recently admitted to being struck by what is probably the biggest case of identity theft to date. ChoicePoint is a rapidly growing company in Alpharetta, Ga., that offers data-related services that range from pre-employment screening to direct marketing support. The company says its databases include 19 billion records about people, their activities and histories.

Dumber decisions — safer world?

ChoicePoint recently admitted discovering last October that, for at least a year, more than 50 fake companies, operating out of Kinko's stores, had full access to ChoicePoint's data and apparently made good use of the access. For a company whose registered Web site motto is "Smarter Decisions — Safer World," ChoicePoint has made some rather dumb decisions of late.

- The company's validation procedures for permitting access to its databases was clearly inadequate. Maybe the company decided that it was too expensive to do things correctly — for example, by visiting all companies before granting access?

- ChoicePoint didn't tell any of the people whose data was stolen that they were at risk for identity theft for almost five months. The company said it was the cops who didn't give a hoot about warning people that their good names were in eminent danger and told ChoicePoint not to tell anyone. Maybe, but ChoicePoint's later actions indicate that it was not exactly eager to do what was right.

- When ChoicePoint finally admitted that something had happened, the company downplayed it and said that the only people who were at risk were 35,000 or so Californians. Perhaps not coincidentally, California by law is the only state where people whose private information is exposed by such breaches must be notified (see www.nwfusion.com, DocFinder: 6086).

- Only after considerable pressure, including a letter from 38 state attorneys general demanding that people at risk in their states also be notified, did ChoicePoint belatedly say it would send letters to 110,000 additional people. (One wonders if the attorneys general of the other states think that identity theft is OK.) Since that expansion, there have been news reports that the number of people whose data was accessed might exceed 500,000.

- ChoicePoint includes information that it doesn't need to in the reports it provides — such as a Social Security number in its personal property and personal auto reports (samples of which are on the com-

pany's Web page). I understand the company might want to include the ability to look someone up using a Social Security number, but I don't understand why it's needed in a report — same for date of birth and a number of other fields — unless the outfit wants to facilitate identity theft.

One good thing might come out of this fiasco: Maybe, Congress will extend California's notice requirement nationwide. One thing that should happen but will not, unless some Congress critters were in the exposed population, is to make companies like ChoicePoint pay for any damage done by such lax processes.

Maybe ChoicePoint's dumb decisions will wind up making this a safer world.

Disclaimer: Historians have said (and will say) if Harvard makes dumb decisions. But the above exploration and hope is mine, not the university's.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com

Workplace

continued from page 29

business-process execution.

Overall, IBM is upping the ante with Workplace in its long battle with rival Microsoft. Between the two, the contest is no longer to see who can hook the most groupware customers but is shifting to a battle over the desktop client, application developers, programming languages and the next generation of collaboration components such as presence.

"When IBM tries to paint the larger umbrella term of Workplace, there is a whole slew of things it could be," says Mike Gotta, senior vice president and principal at Meta Group. "It could be business-level consulting, process modeling, workflow analysis. Where does collaboration and content learning fit into that context of getting a particular series of tasks done?" In the end, the questions become what constitute Workplace: Is it one set of technologies, or is it any one of multiple combinations of technologies? How much of it comes from IBM, from IBM's partners and what ability exists to substitute other vendor's products?

"Those are the things that IBM still needs to make more clear," he says.

The Collaboration direction

IBM is first starting to build that understanding from the Notes/Domino angle.

Last month, the company announced Workplace Collaboration Services 2.5, a Java 2 Platform Enterprise Edition-based collaboration platform for running pre-built, reusable collaboration services, including e-mail and instant messaging. It includes the first pass at Workplace's interface of the future, Activity Explorer, where users can group e-mail, chats and documents, and see activity on those objects using integrated presence capabilities.

"They now have better alignment and synergy between Workplace and Notes/Domino and a much more credible story," says Peter O'Kelly, an analyst at Burton Group.

IBM also unveiled Workplace Designer, a rapid application development tool, similar to Domino Designer, and a critical transition tool for Notes/Domino developers. And the company announced a Notes 7 client plug-in for the Workplace Client Technology, a framework built on Eclipse and Java that eventually will include the Notes 8 client.

The platform was enough to attract San Francisco State University (SFSU), which signed a \$2.3 million contract with IBM earlier this month to acquire Workplace Collaboration Services 2.5 and secure IBM consulting services to roll it out over the next three years.

The school plans to provide what amounts to an electronic classroom. Workplace will provide pre-populated calendars with a student's classes and assignments; provide access to a class management system and library search services; and let students submit work online.

"We really feel that IBM got it right with Workplace. Their vision is insightful," says Jonathan Rood, associate vice president for IT at SFSU. Rood says he is so convinced IBM is on to something that the university actually will first replace its mishmash of e-mail systems with Notes/Domino and then start another upgrade to roll out Workplace.

"Because we wanted this so much, we were willing to go through this extra step to get where we want to go. That is very unusual, but for our environment and our needs in dealing with 40,000 users, Workplace was the right fit. Microsoft didn't offer all the aspects that we wanted," he says.

The competition

However, Microsoft remains IBM's chief competitor. Workplace is about battling a long-time collaboration foe on a number of levels that include development tools, runtime environments, collaboration components and business-process integration.

IBM uses its Workplace Designer, Eclipse framework and Workplace Client Technology to counter Microsoft's Visual Studio and .Net Framework to supply users with multi-language development tools and rich desktop client capabilities beyond a browser.

While IBM wraps its collaboration platform into one brand called Workplace and a cross-platform strategy, including last week's announcement of a \$100 million investment in development work on Linux, Microsoft uses multiple products such as Exchange, Office, SharePoint, Live Communication Server and Live Meeting to define its Windows-centric platform.

Tideway

continued from page 29

elements that "an organization uses to provide and manage its IT services," he says.

New to Tideway's latest release is the ability to model business applications based on software configurations and the data center components applications touch. The product also has enhanced version identification for software packages such as Solaris and Sybase. Previous versions performed an auto-discovery and maintained a database.

For Stephen Ashton, automating the collection of configuration data and being able to maintain one CMDB (down from more than 20 separate databases) was key to his organization. The director of global IT business management for Dresdner Kleinwort Wasserstein, a global investment

"We have been competing with IBM in this space for a long time, and now they are suggesting customers should use Workplace," says Dan Leach, group product manager for the Microsoft Office System. "We think the Workplace approach minimizes the value of the smart client that is already available with Office and masks the complexity of their server-dependent approach that includes costly contracts with IBM Global Services." Those comments foreshadow another fierce battle between these two, a battle some say IBM already leads.

"Microsoft previously has said that user productivity would be a much tougher nut to crack in the future and would not be about just throwing desktop tools out there," Meta's Gotta says. "It all has to work together and the point is business process."

Gotta says IBM has a more cohesive story on that front, but that it still has a lot of work to do to pull it off. ■

bank in London, says he looked for a product when the bank expanded its reach to the U.S. and regulations such as Sarbanes-Oxley demanded he keep accurate accounts of configurations.

Foundation automates the collection and maintenance of the CMDB, which Ashton says helps his staff stay on top of configuration changes that could affect application performance. He says he hopes Foundation will help his staff determine utilization and plan for capacity based on the data.

With more than 6,000 documented changes per year, Ashton says automation is the only way to attain the speed and scalability to handle the complexity of change in the organization's environment.

Tideway's Foundation 4.6 starts at \$100,000 and is priced depending on customer networks. ■

Service Providers

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Short Takes

■ **DirecTV** inked a three-year, \$69 million contract with **AT&T** last week. DirecTV has been an AT&T customer for 10 years. The contract will support new IP-based technologies such as VoIP throughout the satellite television service company including its customer service call centers. DirecTV uses AT&T's voice services to support its customer service operation and AT&T data services to support its enterprise network. DirecTV also uses AT&T's BusinessDirect customer portal to access real-time network performance reports, request trouble tickets, and troubleshoot and resolve network-related issues.

■ **Qwest** last week said it has been cleared to bid on U.S. government contracts after completion of a two-and-a-half-year review by the General Services Administration. The GSA took into account, among other things, significant changes in company management and the company's ethics program, Qwest says. During the review period, Qwest continued to win contracts from federal entities including the U.S. Mint and Air Force bases. Qwest provides communications services for the Department of the Treasury, National Institutes of Health, Department of Labor, Department of Energy, Internal Revenue Service and even the GSA.

■ **Akamai Technologies** and **Macromedia Flash** are teaming to give end users a quick, secure way to speed the delivery of Flash video to desktops. The companies last week announced the immediate availability of Akamai Streaming for use with Macromedia Flash. Executives say the service will eliminate the need to deploy video on-demand applications across multiple browsers and platforms because users will be able to instantly view video using Flash Player. Content providers upload media such as movies, product demonstrations, corporate announcements and sales training to Akamai's EdgePlatform, where it is stored and delivered on demand. Pricing depends on use.

MCI beefs up traffic prioritization

■ BY DENISE PAPPALARDO

MCI Private IP customers now can set more specific traffic prioritization over their Multi-protocol Label Switching-based VPNs, while also getting a better view into end-to-end performance with new monitoring tools.

MCI has added two classes of service (CoS) to its Private IP service, which brings the number of levels from three to five. Within MCI's priority data, mission-critical and transactional data classes (see graphic, right) customers can set additional priority levels for a total of eight levels.

MCI supports prioritization across its network using the IETF's Differentiated Services specification and class-based weighted fair queuing.

"We don't expect too many users to take advantage of all eight priority levels," says Mike Marcellin, senior director of VPN and data marketing at MCI. But the company anticipates more users will become interested in further prioritization within a few years as they add more applications.

Analysts agree that most customers will not opt to use eight priority levels, and only a handful will use all five classes.

"Three classes of service is the bare minimum, and four or five classes is nice. Eight is not all that important to businesses," says Brian Washburn, a senior analyst at Current Analysis.

MCI adds two classes of service

Priority and transactional categories augment three existing options.

Class	Forwarding priority	Apps that typically apply
Real time	Highest	Voice
Priority data	2nd-highest	Video, SAP, Siebel
Mission-critical	3rd-highest	Point-of-sale, Citrix
Transactional data	4th-highest	Telnet, extranet, general data
Default	lowest	FTP, e-mail

(The classes in blue are new.)

Robert Whiteley, an analyst at Forrester Research, agrees but sees some users looking for more detailed capabilities in the future.

"Many enterprises are not yet advanced enough in their MPLS deployments to carve their traffic into four or five different classes," Whiteley says. "However, many enterprises do see it as a future requirement."

MCI leads competitors in terms of number of classes, but some analysts don't see that as a significant differentiator.

"Both Sprint and AT&T offer competitive MPLS-based VPN offerings like MCI's," Whiteley says.

AT&T's service is called Network-based VPN and has four levels of CoS available. Sprint's service, MPLS VPN, also offers four CoSs.

MCI also is making monitoring tools

from Concord Communications available to all of its Private IP customers. In the past, it only offered the tools to Managed Private IP service customers.

MCI is offering four monitoring tool packages ranging from its Basic package with weekly network performance reports, which is available at no additional charge, to near real-time prioritization monitoring with information that's less than 5 minutes old.

"These tools are often the only portal an enterprise has to determine that the VPN, or other MCI service, is meeting [service-level agreement] requirements," Whiteley says.

The carrier's Private IP Standard Select Reporting includes on-demand network trend reports in addition to weekly reports that are included in the basic package. This package is available for \$20 per month, per site.

Private IP ETM Reporting includes the Standard Select package plus CoS performance monitoring. This is available for \$40 per month, per site.

MCI's Private IP ETM Select Reporting includes the above package plus near-real-time performance traffic prioritization reporting. The package also includes a complete customer network status map. The package is available for \$55 per month, per site.

"These tools are great stuff," Washburn says. "It's a nice, cheap way to get great 'eye candy' that some users need to show management what's going on in the network."

Washburn says the Concord tools are less expensive than going with a Visual Networks' set-up where a DSL/CSU is required at every site. But he also says users are limited to only seeing at the SNMP layer. Visual lets users see down to the transmission level.

MCI says it will launch a LAN analysis reporting tool in April based on software from Centrisoft. ■

User group champions telecom user interests

■ BY DENISE PAPPALARDO

If you're unfamiliar with the Enterprise Networking Technologies Users Association, the current state of upheaval in the telecom industry might present reason enough to check it out.

ENTUA is one of the most active user groups for enterprise customers, with 125 members from 55 companies working to broaden access to network carriers, champion member interests, and drive product and application development.

Considering the turbulent nature of the telecom industry with SBC's planned \$16 billion acquisition of AT&T and Verizon's planned \$6.7 billion acquisition of MCI, an advocacy group on your side might

pay dividends.

Last year, ENTUA, which was formed in 1997 from two separate AT&T user groups, broadened its focus beyond an AT&T-only user organization. An AT&T representative sat on the group's board up until mid-December.

At that time, the group's members voted to let other carriers participate. With so many companies using multiple providers, ENTUA says it made sense to expand the group's reach beyond AT&T.

To better address member needs and goals, the group also restructured its committees, says Jay Shell, vice president of committees at ENTUA and a member of the technical staff at Flagstar Bank in Troy,

See ENTUA, page 34

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EYE ON THE CARRIERS

Johna Till Johnson



Life's tough for telecom managers. They're caught in an epic Catch-22: Carriers consistently screw up services and billing, and then deny the problem and refuse to remediate. The only real recourse is to switch to another telco — which will do the exact same thing, sooner or later. Are we crazy yet, Yossarian?

Here's a typical case from a reader: "I've recently switched my T-1 voice service to Paetec Communications. Since the change in early December, I've had a lot of misdirected and dropped outgoing calls, and some incoming calls being routed to the strangest busy signal I've ever heard. My carrier swears their line is fine and will do

The carrier Catch-22 . . . and how best to cope

no more. What do I do?"

Or another: A reader complains that his carrier (Sprint in this case) had overcharged him to the order of \$60,000 per year. When faced with convincing proof of the overcharge, Sprint graciously conceded — that it owed a little more than \$1,000. Gee, thanks, guys.

And please don't get the wrong idea that anyone else is off the hook just because I've singled out Paetec and Sprint. There was the time MCI's frame relay network corrupted a client's frame relay packets, and MCI tried to say it wasn't at fault because "we only promise to deliver the packets — we make no guarantees about the condition they're in when they get there." (I really am not making this up.)

My all-time favorite carrier crisis involved the inability to connect a single international circuit, despite multiple conference calls involving senior executives at all the company's carriers, which if memory

serves included AT&T, Verizon and a brace of European PTTs. And space constraints are the only reason to leave out stories about SBC, BellSouth, Qwest, et. al.

You get the idea. Whoever your carrier is, they probably screw up on a regular basis (if not, write and let me know — *Network World* readers are dying to hear from you).

The only saving grace is that regardless of the specifics of the problem, the solution's usually the same. It's by no means perfect, but if your carrier chronically screws up, do the following:

- Document the heck out of the problem. Every time it happens, send a letter to the provider (and keep a copy). It won't make the problem any better, but it will provide ammunition if you want to terminate your contract early without penalty.

- While the FCC is unlikely to be of much help (they're too busy cracking down on wardrobe malfunctions), provide them and the local public utility commission

with detailed documentation and request to lodge a complaint.

- Consider switching to another carrier. Issue an RFP to as many providers as possible, request detailed service-level agreements — and be sure to include an "out clause" permitting you to terminate the contract without penalty for documented non-performance, which means you'll have to be prepared to benchmark performance (see above).

And keep your chin up — even Yossarian finally made it out OK.

Johnson is president and chief research officer at Nemeris Research, an independent technology research firm. She can be reached at johna@nemertes.com.



ISP News Report

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Spim arrest spotlights growing problem

New York teen charged with CAN-SPAM violations, attempted extortion.

■ BY PAUL ROBERTS

A New York man has been arrested and charged with sending out unsolicited instant messages, marking the first known case of criminal action taken against someone accused of sending "spim," or instant-message spam.

Anthony Greco of Cheektowaga, N.Y., was arrested at Los Angeles International Airport on Feb. 16 and charged with violating the federal CAN-SPAM Act, after the 18-year-old allegedly sent more than 1.5 million IMs advertising mortgage refinancing services and pornography to users of MySpace.com's IM service,

according to a statement released by U.S. Attorney Debra Yang.

The news comes on the heels of a new survey from Pew Internet & American Life Project that reports that approximately 17 million users have received spim. The Pew telephone survey of 2,200 U.S. adults estimated that 42% of the country's 134 million online adults use IM.

In fact, real numbers on IM use in the U.S. might be much higher, given that data on the most-avid IM users — those younger than the age of 18 — was not part of the survey, says Lee Rainie, director of the Pew Internet & American Life Project.

It is too early to tell if spim will become as big a problem as its e-mail cousin, spam. However, IM is an important part of many Internet users' lives, and marketers likely will figure out a way to use it and get information and sales pitches to consumers, Rainie says.

"This is a target-rich environment that all sorts of actors will figure out how to exploit as the months and years unfold," he says.

In the U.S. Attorney's case, authorities allege that, starting in October 2004, Greco fraudulently created thousands of accounts at MySpace, an online community in which members can write blogs, share pictures and send instant messages. Greco sent spim messages from the accounts, according to the U.S. Attorney's statement.

The man allegedly contacted MySpace.com and demanded that he be given exclusive rights to send commercial e-mail to MySpace.com users. When MySpace.com did not respond, he threatened to share his technique for sending spim messages to MySpace.com users

with the spamming community and "open a Pandora's box of Spam" on MySpace's network, the statement said.

The U.S. Secret Service and Los Angeles Police Department's Electronic Crimes Task Force investigated the case.

Prosecutors are charging Greco with threatening to cause damage to MySpace.com's computers and with intent to extort, in addition to the CAN-SPAM Act violations. He faces a maximum penalty of 18 years in federal prison if convicted on all three offenses, the U.S. Attorney's statement said.

Greco's case might be the first criminal case brought against a spimmer, but it is not the first spim case to make it to the courts. Last October, AOL filed suit against 20 "John Does" in a case that alleged violations of the CAN-SPAM Act for sending bulk IM solicitations over AOL's Instant Messenger network.

Roberts is a correspondent with the IDG News Service.

ENTUA

continued from page 31

Mich. The group now has three active committees that are concentrating on education, customer network, and government and regulatory issues.

The first committee is working on offering members opportunities to learn about new technologies. Some of these efforts are in the form of Webcasts and are hosted by vendors.

The customer network committee is set up to focus on technology evolution. This group is charged with engaging network carriers to find out where they are with certain technologies.

The third committee is focusing on how regulation affects services and the carriers. For example, the group is trying to inform members of how telecom tax issues affect companies, letting users take an informed position, Shell says.

ENTUA is also in the process of reviving its Listserv discussion board. Members will be able to use this as a means to exchange information. For example, if one member is about to deploy a Cisco Call Manager he can ping the group and get firsthand feedback from users who have already deployed the product.

In the past, the group used to meet in

User group power

The Enterprise Networking Technologies Users Association represents members' concerns to service providers. The group includes:

- Bally Total Fitness
- Barclays Global Investors
- Coca-Cola Enterprises
- First Health
- Ford Motor Company
- J.C. Penney
- Lockheed Martin
- McDonald's
- Southwest Airlines
- The Hartford
- United Parcel Service
- Weber State University

person regularly but since the Sept. 11 terrorist attacks, ENTUA has resorted to more Webcasts and virtual meetings, Shell says. However, ENTUA is in the process of working with some conferences to collocate meetings where many members already might be traveling. ■



More online!

Listen to highlights from Mark Gibbs' keynote presentation on strategies for creating a messaging environment that ensures network integrity, user productivity and returns power and control to enterprise network managers.

DocFinder: 1543

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Technology Update

■ AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

Software streaming revamps desktop

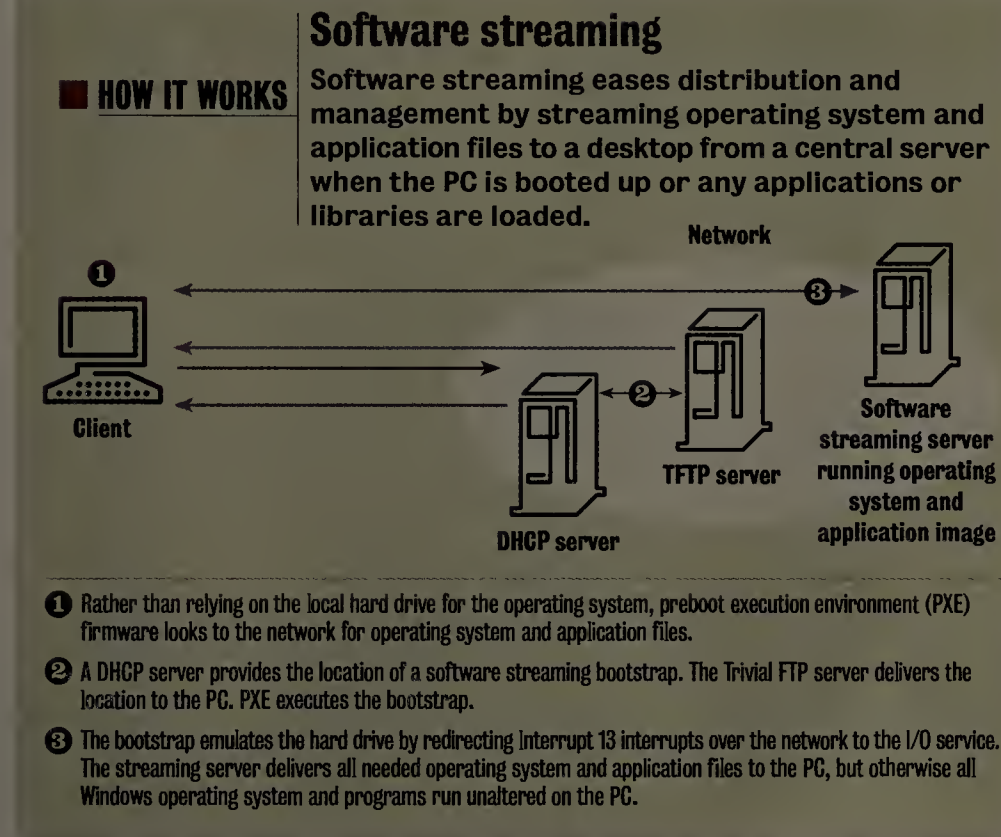
■ BY JEFFREY HIBBARD

The long-elusive Holy Grail of desktop computing has been the ability to provide IT management with the centralized control it needs to improve security and drive down technology costs without compromising speed, functionality or dependability. Efforts to date — notably thin-client approaches — have fallen short.

Software streaming capitalizes on network advances to dramatically improve software distribution and desktop management. By centralizing control of operating systems and applications, software streaming slashes management and support costs while providing users with systems that are fast, flexible and dependable.

From a conceptual standpoint, software streaming is similar to audio streaming. With audio streaming, songs are maintained on a central server and streamed on-demand to a client PC. Software streaming behaves similarly but, remarkably, applications and necessary elements of operating system software are streamed to a desktop from a central server when a PC is booted up and when any applications or libraries are loaded. While the size of an operating system image might exceed 1G byte, only a fraction of that (less than 100M bytes) is in a desktop computer's memory at any given time. With software streaming all programs run locally on a desktop PC, enabling much greater productivity than what can be achieved with a thin client.

As with audio streaming, a desktop PC can choose from a variety of "golden images," which contain different versions of the operating system or are configured with different software. Any image can be



streamed on-demand, and all that is required is a simple reboot to so do.

This breakthrough can be achieved only if desktops can boot from the network and do not need their operating systems stored on a locally attached bootable media — that is, no hard drive or compact flash are required to boot the computer. With software streaming, a desktop utilizes preboot execution environment (PXE) firmware, which is standard as part of the BIOS or the option ROM on the network interface card.

Software streaming provides a diskless, software-only solution that is transparent to clients. Windows applications and Windows

device drivers run unaltered on desktop PCs. There are no hardware requirements beyond those required by Windows and a PXE-enabled network adapter.

Because software streaming is often misunderstood, it is important to reiterate that an operating system is not downloaded to each desktop, but rather the software-streaming service sends only the files necessary for each desktop to start using the operating system and desired application.

The key benefits of software streaming include:

- It lets IT ensure that all data and applications are controlled centrally to provide

the best business continuity and security.

- It helps end users eliminate viruses, spyware and adware simply by rebooting.

- It lets end users run programs locally, achieving the best possible performance.

There are four critical elements required to support a streaming scenario: a communication mechanism, logon services, I/O services and administration.

The communication mechanism with client desktops includes PXE, which uses the DHCP and Trivial FTP standards to deliver an IP address and bootstrap from network servers to a client. Afterwards, PXE executes the bootstrap.

The bootstrap has been configured with the IP address of a logon service, which authenticates a desktop media access control address and establishes a handle to an I/O service. The bootstrap also emulates a hard drive by redirecting Interrupt 13 interrupts — necessary for hard disk reads and writes — over a network to the I/O service rather than to a local hard drive. (Interrupt 13 is the software interrupt for disk I/O used by Microsoft.)

The I/O service plays the role of a network drive and handles caching on a client or server. This doesn't create significant network traffic and latency because the cache is not large and because software streaming pre-fetches and uses other cache techniques.

The PC functions and executes as if the drive were local and is not aware that the necessary operating system files are being streamed on-demand by using a block-oriented protocol.

Hibbard is vice president of marketing for Ardenne. He can be reached at jhibbard@ardence.com.

Ask Dr. Internet

By Steve Blass

We are considering setting our Windows clients (2000 and XP) to open a virtual session to a server where all applications are loaded. The clients would boot up using a local operating system and then access applications by opening a session to the server. Software upgrades would only be performed on the server. Is this a good idea?

The biggest problems are application network awareness and network latency. Running applica-

tions from a network server requires network-aware applications. Another approach is to use terminal services, which let you use workstations like dumb terminals and run everything on the server, but you need a server for every 10 to 20 simultaneous users, maybe 50 for low-intensity applications. Licensing can be expensive. I would look at Group Policy Objects implementations, which could manage client update controls through Windows Update Services rather than relying on server horse-

power and WAN connectivity into business-critical applications. You want to position people to keep working when the network is down. The Internet is unreliable. For some applications, it seems a waste not to leverage automatic update services and the PC horsepower available on the desktop.

Blass is a network architect at Change@Work LLC, Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark
Gibbs



We start this week with a follow-up to the *amuse-bouche* portion of last week's dining experience. But first, let's refresh your memory: The topic concerned a problem raised by reader Don Janeway. He wanted to boot from a floppy so that it, in turn, booted a Live CD (a bootable Linux distro on a CD) in the CD drive. (This was because the BIOS of Janeway's machines is old enough to not support CD booting.)

Reader Chris Lucht suggested using the Smart Boot Manager (SBM), which can be found on the first CD of the Debian 3.0r3 distribution.

From the original SBM Web site (go to www.nwfusion.com, DocFinder: 6083) SBM is: "Smart Boot Manager... is an [operating system] independent Boot Manager — a program that is loaded by the [BIOS] before any operating system and allows you to choose which operating system to boot. It's like OS/2 Boot Manager and many other similar programs, for example System

Smart booting and proxy basics

Commander, Bootit, Bootstar, PQBoot. But it's not an OS Loader; it's not a replacement for LILO or other OS Loaders. In other words, you must use LILO (or other similar programs) to boot Linux... using Smart-Btmgr to give you an easy to use interface to boot [from] multiple [operating systems]."

The last release was Version 3.7, which you won't find on the original SBM site but rather on the SourceForge SBM sub-site at DocFinder: 6084.

Anyway, Janeway last week made floppies of SBM under DOS, Windows 95/98 and ME. The creation of the floppies seemed to be successful but when he tried to boot an SBM floppy on any machine other than the computer the disk had been created on, the boot failed and displayed the message, "SBMK Bad!" It seems that each machine that he tried had a different type of floppy disk controller.

We got an update from him last week: He used rawrite3.com (DOS) and rawwrite win-0.7.zip (Windows 9x) to make the SBM boot disk and now he can "make SBM work on several computers with several [operating systems] (IBM ThinkPad WinXP, PC's x386 and x586 running Win 3.1, 95 and 98) [but] the old Dell laptop (Win ME) refuses — I still get SBMK Bad regardless of FD controller. Must be something in the

Dell BIOS, or the floppy drive itself. I don't have another Dell floppy drive to try, so I'm stuck there."

We found a comment in a Web forum that SBM is finicky. The author, Jeffrey Cunningham, suggested that when you create the SBM floppy, you should immediately write-protect the disk. When SBM prompts you to "save changes," you should respond with 'n.' If you allow SBM to write to an unprotected floppy, the next time you boot you will get the "SBMK Bad!" error message.

Interestingly, Cunningham concluded that if SBM still gives a disk error, the cause is your CD-ROM drive or whatever source you're trying to boot from. He also found that older Dell CD-ROM drives are not bootable using SBM or any other method, and suggested replacing the CD-ROM drive. This is an arcane problem. Any thoughts on why some FD controllers would cause problems?

A few months ago we discussed a simple software proxy server (DocFinder: 6085). Many readers responded wanting basic information about deploying proxies and what to do in an enterprise environment. A good topic. Let us start with the basics:

A proxy server usually serves multiple roles: It always acts as a security device,

and its optional functions are as a network management tool and/or a performance enhancement subsystem. At its simplest, a proxy server accepts requests from one or more computers and relays those requests to other computers to screen and/or control the access of PCs on an internal network to services on the Internet.

By blocking or limiting inbound connections (technically termed "IP forwarding") made from a WAN to a LAN and presenting the Internet with a single outbound IP address, a proxy server provides features similar to those of a firewall protecting the LAN from external intrusion.

Things get interesting when a proxy server is used as performance enhancement subsystem. Because a proxy server examines every protocol exchange and relays requests, it can keep copies of the data so that multiple requests for identical content can be satisfied from a cache rather than having to re-issue the request to the remote server. Not only does this reduce WAN connection loading, but retrieving content from the proxy cache instead of a remote server can be orders of magnitude faster.

Next week, we'll delve into proxy technology. Until then, send your requests directly to gearhead@gibbs.com.



Cool Tools

Quick takes
on high-tech toys
By Keith Shaw

Phoenix Audio launches VoIP headset alternative

If you like using your computer for making VoIP calls but don't like using a headset, the Solo Conference microphone from Phoenix Audio Technologies might fit the bill. The USB conference microphone is available for about \$200, and connects directly to a PC for use in softphone VoIP and Webconferencing applications.

The system includes echo cancellation, noise suppression and equalization features. Multiple participants can join an online conference at the same endpoint without using a headset, Phoenix says. A small form factor also means the device takes up very little desktop space.

More details are available at www.phnxaudio.com.

Phoenix Audio offers a headset-free alternative for VoIP calls with its Solo Conference microphone.



2G bytes of music on a tiny audio player

PNY Technologies last week launched a new Vibe digital audio player, which supports MP3 and Windows Media Audio files, and can store up to 2G bytes of files. The player will cost about \$300 and is scheduled to be avail-

able in the second quarter.

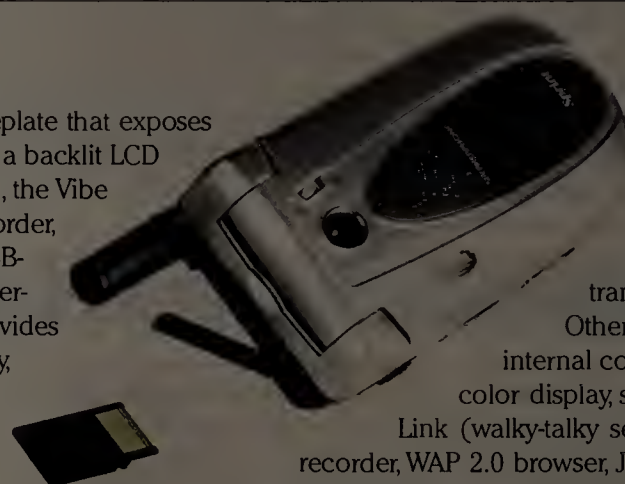
The device features a sliding faceplate that exposes and protects the control panel, and a backlit LCD screen. In addition to playing MP3s, the Vibe includes an FM radio and voice recorder, and can double as a regular USB-based memory storage device. It operates on a single AAA battery, and provides up to 12 hours of continuous play, PNY says. Other Vibe players are available in 128M-, 265M-, 512M- and 1G-byte capacities.

Sprint, Sanyo debut new multimedia phone

Sprint and Sanyo last week launched the MM-5600 multimedia phone, which lets users listen to music (MP3 and unencrypted advanced audio coding files), take photos, and view video at rates of up to 15 frames per second. The device includes a 1.3-megapixel camera with flash, digital zoom and video recording functionality. It is scheduled to be available mid-March for \$430 (or \$280 after rebates).

The phone also includes a miniSD memory card (16M bytes) for storing photos, music files or videos, and comes with an adapter to let the card transfer data to Secure Digital-compatible devices.

With larger miniSD memory cards (at least 128M bytes), users can shoot up to 90 minutes of video, Sprint says. With an included USB cable, the device can be used with the memory card to act like a



Sprint and Sanyo's MM-5600 multimedia phone lives up to its name with file storage, camera and video capabilities.

key-chain storage device and transfer them to the PC.

Other features include a 2.1-inch internal color display, a 1.1-inch external color display, support for Sprint PCS Ready Link (walky-talky service), speaker phone, voice recorder, WAP 2.0 browser, Java (J2ME) download ability, Short Message Service, e-mail support and voice-activated dialing. The phone's standard battery can support up to 3.4 hours of talk time and up to 10.5 days in standby mode.

Movie clip extractor now available for Windows

Miraizon announced last week that its DVD movie clip extraction software, Cinematize 2, is now available on the Windows platform. The software lets users extract audio or video clips off unencrypted DVDs (most commercial DVDs are encrypted, though) and save them in a format compatible with standard multimedia editing tools. This lets users create new content from current DVDs, the company says. Originally available on Macintosh only, the new version can be downloaded for Windows systems for about \$60 (free trial version available) at the Miraizon Web site. A packaged version of Cinematize 2 for Windows is scheduled to be available later this year.

In addition to extracting movie content, the software can extract still pictures by extracting specific short segments, the company says. Audio content support includes PCM, AC-3, MPEG, DTS and SDS, and video support includes PAL, NTSC, MPEG-1 and MPEG-2. Clips are compatible with multimedia editing tools from companies such as Roxio, Nero, Microsoft, Adobe and Apple.

Shaw can be reached at kshaw@nww.com.

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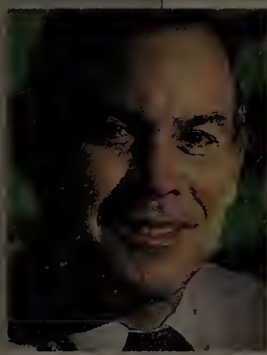
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ON TECHNOLOGY

Neal Weinberg

Competitive telcos fight for survival

Without going into gory detail, let's just say the past five years have not been kind to the competitive telecom industry. And the worst might be yet to come.

The recently announced AT&T/SBC and MCI/Verizon megamergers could hurt competitive local exchange carriers (CLEC) in a few ways: First, it's never a good thing when you're the little guy and the big guys you're competing against get even bigger and stronger.

Second, AT&T and MCI fought the good fight in front of the FCC on behalf of the non-RBOCs. Now the CLECs will have to take on those regulatory battles alone. And based on recent FCC rulings, that's probably not a good thing.

The FCC dealt a stinging blow to the beleaguered CLECs by voting in December to phase out the rule that gave the CLECs discounted access to the RBOCs' local loops for competitive voice services. This means the CLECs need to either build out their own networks or find a last-mile alternative to RBOC copper.

Which brings us to problem No. 3 — the capital markets got burned once financing giant fiber network build-outs, and they aren't about to go down that road again.

All in all, it looks pretty grim for the competitive telcos. But you wouldn't know it from the CompTel/ASCENT show in New Orleans earlier this month. Three thousand people turned out, the show floor was full, vendors were introducing new services for enterprise customers, and there was a definite buzz in the air. So what gives?

Well, it takes a pretty determined entrepreneur to take on companies such as Verizon and SBC in the first place. And that fighting spirit was evident throughout the show.

Mark Richards, president of Vox Communications, urged his colleagues to transition to VoIP immediately. "CLECs are not going to die," he said defiantly. "The vast majority of what you do, [billing, customer care, etc.] carries over to the VoIP world. Get into it now."

VoIP was certainly the hot topic among the CLECs, but not the only one. WiMAX, satellite and broadband over power line were also mentioned as alternatives to copper.

On a more strategic level, there was widespread agreement that opportunities still exist for smaller, more focused, nimbler players to thrive in a world dominated by the telecom giants.

"This transition period will be painful," said CompTel/ASCENT CEO H. Russell Frisby. "The landscape will look quite different."

But will the competitive telecom industry survive? "Absolutely," he said. "We bottomed out and we're on our way back."

— Neal Weinberg
Features editor
Nweinberg@nww.com

opinions!

Assessing Powell

Regarding Johna Till Johnson's column "Praise for Powell doesn't square with the facts," www.nwfusion.com, DocFinder: 6081): Thanks for injecting partisan politics into a technology magazine. There's nothing I look forward to more than someone grinding their political axe in an IT publication.

"Don't get me wrong, I'm not saying Powell doesn't deserve accolades," Johnson wrote. Well...yeah, she is. At least that's what I gathered after reading about how he single-handedly destroyed competition, trashed the First Amendment and put the media under an authoritarian censorship regime. I mean, come on, there were too many standards on radio and television anyway. We needed more smut, especially on public airwaves. Because, as we all know, I'm perfectly capable of monitoring my 9-year-old 24 hours a day, and if inappropriate material comes on the radio or TV from an aspiring Howard Stern clone, hey, I should be right there to change the channel. Thanks for setting me straight on that.

Douglas Stanley
IT manager
Montgomery Airport Authority
Montgomery, Ala.

I want to thank Johna Till Johnson for her forthright and accurate depiction of Michael Powell's tenure as chairman of the FCC. Powell seriously impeded competition in all aspects of the telecommunications industry and, to me at least, had no understanding of the basic underlying technologies involved in newer services.

Dan Lavery
Partner
Matterhorn Group
Wyckoff, N.J.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

The Big One

Mark Gibbs' column "The Big One: Millions and billions" (DocFinder: 6079) reminds me of a recent Discovery Channel show I saw recently about Mt. Vesuvius. The people knew the Big One was coming. The government had a plan that was more of a dream than a workable solution for dealing with the Big One. The people in the shadow of Vesuvius had an attitude like that of most computer users: "We have been dealing with it."

The volcano had minor eruptions every few decades, and the people rebuilt on top of the new landscape, just like computer users who patch their operating systems after the latest worm. This gives the illusion of dealing with the problem. In IT, we make backups and redundant systems. We even buy generators and fire-suppression systems, but these are nothing more than micro-focused tasks to reassure ourselves, like those living in the shadow of Vesuvius.

The last time Vesuvius went big, there was a slow buildup of the usual eruptions, then things went from bad to catastrophic. I envision the IT Big One going down in much the same way. One day the usual issues we have grown so used to will blossom to devastate 30% to 70% of network infrastructure, servers and PCs. Replacement parts demands will dry up the market and drive up prices. We'll have to decide who really needs to use the few remaining resources to work. Massive unemployment, spotty network service and broken business relationships will be just part of the fallout.

The Y2K threat inspired people to build fallout shelters and store food. These are just higher levels of backups and UPSs. The Big One could have nothing to do with computers at all. Perhaps 65 million years from now, the ancestors of cockroaches will look at fossilized PCs and wonder.

Tim Mead
Ogden, Utah



More online! www.nwfusion.com Find out what readers are saying about these and other topics. DocFinder: 6077

MARGULIES
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So who do you like in college hoops this year?

THE FINAL FOUR

This isn't a basketball tournament... it's telecom industry evolution...



USER VIEW

Chuck Yoke

Before my career in technology, I was in the culinary field, which has its own unique terminology. When a restaurant runs out of a menu item, it is "86ed." It is common to hear "86 prime rib" or "86 lobster" called out in the kitchen so the wait staff knows those items are no longer available.

One of my cooks never used the term "86." When he ran out of an item, he simply said, "There ain't none." Not as dramatic as "86," but it got the message across.

At the risk of being called a heretic, I have come to the conclusion that we need to start 86-ing the emphasis on VoIP cost savings, for in the majority of cases, "there ain't none."

Now don't get me wrong; I totally support VoIP. It is the way of the future and if you are not currently evaluating VoIP options, you need to be. But don't think you are going to generate substantial cost savings with VoIP. At best, you might see a modest reduction over time, but more likely your costs will remain static or increase.

Large corporations have negotiated voice rates of pennies per minute, and MCI's emergence from bankruptcy has created a quasi-price war that lets even small companies obtain significant reductions in voice rates.

The toll bypass feature of VoIP is no longer significant.

The promise of reduced support costs through simplified management systems, converged voice/data support staff and a single infrastructure is yet to be realized. Over a five-year analysis, the combined

'86' the VoIP cost savings

costs of new capital, upgraded management systems, training and conversion activities can eliminate any savings gained by reducing voice circuits.

So why do I support VoIP? Because I don't have a choice. The one entity that will gain a financial advantage with VoIP is the carriers, which will be able to reduce their overall infrastructure and support costs. Because of this, the carriers will move to VoIP. While the carriers will continue to support TDM in the near term, the associated costs will increase. I need to adopt VoIP in order to avoid higher TDM costs.

Similarly, in the data world, the carriers are phasing out support for low-cost X.25 connections. They will continue to support X.25, but at much higher costs. I need to convert my X.25 networks to IP and my voice functionality to VoIP not to save costs now but to avoid even higher operating costs in the near future. And this in itself is a sound business case.

VoIP is the future of voice. I recommend VoIP for any new implementation and am planning for eventual enterprise-wide VoIP. But I will not realize any cost savings. What I will realize is a lower increase in costs than if I try to stay with TDM.

If you are analyzing VoIP and see substantial cost savings, re-check your numbers. You probably left something out. To paraphrase my old kitchen staff: 86 VoIP cost savings. There ain't none.

Yoke is director of business solutions engineering for a corporate network in Denver. He can be reached at ckyoke@yahoo.com.

We need to start 86-ing the emphasis on VoIP cost savings . . . there ain't none.



ABOVE THE CLOUD

James Kobielus

Has anybody noticed that the application platform market is melting down? Service-oriented architecture principles are dissolving the underpinnings of yesterday's computing environments, making concepts such as "platform," "application" and "language" irrelevant in the world of Web services.

But SOA and Web services are just one part of the platform-meltdown equation. The platform vendors are also flailing about, not able to achieve the momentum to place their environment — be it Windows, Java 2 Platform Enterprise Edition (J2EE), or Linux/Apache/MySQL/PPP (LAMP) — head and shoulders above the rest. All these platforms are dissolving into a pool of fear, uncertainty and doubt (FUD) that has enterprise customers scratching their heads, seeing no clear, slam-dunk platform for their current and evolving needs.

Look at Microsoft's tortuous path from .Net to Longhorn and beyond. The software giant has decomposed the new generation into a bunch of incremental releases with various release dates, many of them indefinite, strung out over several years, with the strong likelihood of unanticipated delays. Nobody has any confidence that Microsoft will ship any piece of its Longhorn road map on time — that is, within Software Assurance time frames that would entitle customers to an upgrade (for which many have prepaid, with no guarantee of delivery). And nobody has any confidence that the resulting Longhorn-generation platform components, apps or tools will enable tight security.

The rival J2EE camp is slogging through its own field of FUD. One of the biggest issues is whether the J2EE "standard" — actually, an evolving assemblage of standards and specifications developed by Java vendors under the Java Community Process — will survive in the face of "rebel" Java-based frameworks that offer simpler development/runtime approaches than the full J2EE 1.3 or 1.4 stacks.

The fundamental fault line in the Java community is between those who favor development of POJO (plain old Java objects) vs. those who stress what I call "MOJO" (massive obnoxious J2EE overhead). That's a

FUD muddies platform wars

spectrum from simplicity to complexity, from lightweight to heavyweight, from loosey-goosey to strict-constructionist Java programming. Though J2EE 1.4 is out and J2EE 1.5 is in the works, nobody has any confidence that most J2EE app platform vendors will support the full evolving "standard" in future releases. Companies that have committed to J2EE are sweating profusely, wondering whether the fabled cross-platform framework is a thing of the past.

The LAMP platform vendor community is still in its heyday — in other words, vendors such as Red Hat, Novell and JBoss still can claim considerable momentum in new customer wins. LAMP isn't a platform in the single-vendor governance model (à la Windows) or single-community governance model (à la J2EE). Rather, LAMP refers loosely to application environments built on Linux and other open source components (including but not limited to the "AMP" components in its name).

One of the biggest FUD issues with LAMP is vendors' inability to assure customer indemnification against damages that might result from IP infringements associated with various open source components. Investing in a LAMP-based solution is a bit like buying a house without title insurance: You pay hundreds of thousands of dollars without any assurance that a long-lost titleholder won't someday be able to evict you from your property.

Another FUD issue is the potential for nasty technical fingerpointing when the inevitable security issues strike LAMP platforms. No two vendors' LAMP platforms are alike. Each vendor (indeed, each user) can and does assemble an environment from a diverse collection of open source components from diverse open source communities. Any security issue or interoperability glitch will be a nightmare to fix.

All these platforms — Windows, J2EE and LAMP — will survive. All will continue to evolve. But none of them will overcome the flood of FUD that cramps their respective futures.

Kobielus is an independent IT consultant and analyst in Alexandria, Va. He can be reached at (703) 924-6224 or james_kobielus@hotmail.com.

None of these platforms will overcome the flood of FUD that cramps their respective futures.

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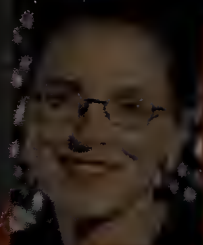
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FROM THE EDITOR

REVIEW OR TEST: Why the difference matters



Gene Shalit reviews movies. Jeffrey Steingarten reviews restaurants. *The New York Times* reviews books. *Network World* tests products.

The distinction between the words "review" and "test" may seem inconsequential at first pass. But the difference between the actions represented by these verbs can be an important one — especially if you are looking for objective insight into how installing a new 10G Ethernet switch, SSL VPN or wireless access point will affect your network.

A significantly large portion of the industry awards bestowed on products today by trade publications, online sites and trade show marketing engines require the product to meet a single criterion. They have to look good on paper.

That's right. Too often, a product wins the award because the marketing collateral says it tastes great and that it's less filling.

That might be a good assessment strategy for buying cheap beer. But if you're looking to drop hundreds of thousands of dollars on a product that will affect your network's performance, security and/or availability,

you'd be foolish to trust an opinion about that product based solely on a review of marketing documents written by the organization that's trying to sell you said product. Far wiser would be turning to the judgments of an objective third-party expert who has conducted thorough hands-on testing of the product.

We don't take our test program lightly, or this annual designation of the best products of all those tests. That's why we selected only 42 of the 260 products we tested in the past year as finalists, with nine of those being the ultimate award winners. Look inside for more on the how and why behind our choices, and then say it with me: "*Network World* tests products."

And understand that we're not going to recommend a product to you that we've not had a significantly good hands-on experience with ourselves.

— **Christine Burns**

Executive editor, testing
cburns@nww.com

Best of the tests

Three award-winning products stand out among the 42 products tested and 12 finalists for a reason: they're the most innovative and reliable.

Testing outside the box

Of products that break through the usual in the world of networking, these 12 products are the most innovative.

Open source, tried and true

Only products that have been tested and proven to be reliable and secure are included in this list.



Category-breaking innovation

Selected by five columnists, these products and services offer fresh approaches to today's network problems. **70**

Fave raves

Five readers discuss their favorite network products and services. **74**

Signature Sign-off: Really cool tools

Josh Shaw, senior editor of product testing, picks the coolest of the cool products he tested in '04. **78**

The Best Products Issue is one of six bimonthly supplements providing insights, opinions and information on the biggest trends in networking. Up next is the Network World 200 Issue, our annual exploration of the 200 biggest network vendors in North America, coming April 25. Also visit the Best Products Issue online, at www.nwfusion.com/best/2005.

THE Signature



Best OF THE tests

These nine award winners stand out among 260 products tested and 42 finalists for outstanding performance and unbeatable value.

BY CHRISTINE BURNS AND KEITH SHAW

Last year's crop of network products tested by the Network World Lab Alliance isn't likely to get noted in the *Farmers' Almanac*, but it certainly was a bumper one.

In all, we tested more than 260 products from more than 200 vendors. Forty-two stood out as top performers during rigorous, hands-on testing — in some cases lasting weeks or months — in one or more of our 13 Network World Lab Alliance partner facilities or in the lab run by Keith Shaw, senior editor of product testing.

Nine stood out as the cream of the crop, earning our highest recommendation for enterprise deployment among the 42 finalists. Each garnered a Best of the Tests Award in this, our sixth annual presentation.

From 260 to 42

To narrow the field to our 42 finalists, we grouped top products from disparate tests into eight categories based on the most critical network function the product addresses. The categories are:

- Messaging and collaboration: collaborative workspaces, instant-messaging management, Web conferencing meeting spaces.
- Network infrastructure: access routers, blade servers, dual WAN routers, Ethernet backbone and workgroup switches, wireless network gear.
- Network management: desktop and client management suites, network analysis tools, network configuration management products, network modeling wares, network performance analysis software, WAN/bandwidth management products.
- Security infrastructure: authentication servers, intrusion-prevention systems (IPS), IPSec VPNs, security appliances, SSL VPNs.

- Security management: anti-spy software, anti-virus management software, endpoint security tools, patch management wares, policy auditing and compliance software, security event management products, Secure Shell management servers, vulnerability assessment and management products.

- Storage: director-class multi-protocol switches, workgroup switches, disaster-recovery tools.

- Web infrastructure: Web application firewalls, Web application monitoring tools, Web front-end devices.

- Wireless and mobility: location-based security systems for wireless LANs, mobile middleware, WLAN management and monitoring tools.

All our finalists had to make the grade on overall performance, management capabilities, unique feature sets and ease of use.

From 42 to 9

To determine which of each category's finalists most deserved Best of the Tests honors, we considered each product's overall usefulness when deployed in a large-scale network. Those having multiple tools for getting the job done carried more weight than point products honed for a single task. (Why nine winners instead of eight? We named two winners in the hard-to-call network management category.)

Besides these 42 finalists and nine winners, we also laud products we tested in several groundbreaking evaluations — of anti-spam, IPS, VoIP

and wireless security products. We didn't designate winners in these tests for a variety of technical reasons but do highlight noteworthy performances. For a look at these exceptional wares, see "Testing outside the box," page 64.

And now, read on to find out more about how our Best of the Tests winners could help increase your network yield.



In all, we tested more than 260 products from over 200 vendors.

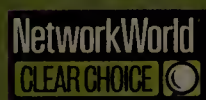
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Messaging & collaboration

Collaborative workspaces, instant-messaging management, Web conferencing meeting spaces.

WINNER: Akonix's L7 Enterprise

The biggest news in the messaging space last year was the emergence of instant messaging as a corporate tool. No longer were employees using IM solely to check in with friends about lunch plans — they had begun to use the systems for communicating with customers, clients and other business partners for work purposes.

But with compliance regulations such as the Health Insurance Portability and Accountability Act and the Sarbanes-Oxley Act looming over corporations, monitoring and managing IM systems is a potential headache for IT departments. We set out to test for the best IM and monitoring system, and found the Akonix L7 Enterprise deserving of that credit (www.nwfusion.com, DocFinder: 6022).

Lab Alliance members Christine Perey and Travis Berkley said they were impressed with L7 Enterprise's customization features for user configurations and policies, especially in governing file transfers by type, size or time of day. With L7 Enterprise,

you can get as detailed as creating a policy that lets only marketing employees send PDFs and JPEG files between the hours of 8 a.m. and 4 p.m. on Wednesdays. You can apply rules to IP address, IM handle and other identity management types. The system also lets you set rules based on user location. With this feature, for example, you can mandate that users be connected to the VPN to use IM. The system features an easy-to-use Windows program for creating attractive summary or detailed reports, charts and graphs. These can be used as PDFs, Crystal Reports or HTML.

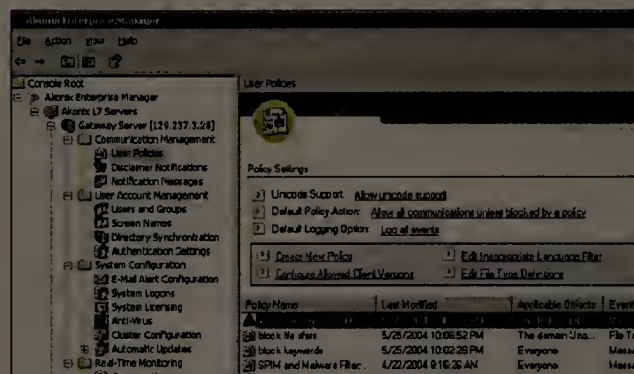
This small company earned accolades for its innovative technology, and we hope to see more innovation from Akonix in future upgrades.

PRODUCT MASTERMIND

THE MAN: Eric Cattell, lead software engineer

JOB DUTIES: A member of Akonix's founding team, Cattell has been a key architect and core engineer for Akonix L7 Enterprise since its release in 2002.

FAVORITE FEATURE: "Our policy management engine. It is unique, complete and easy to use. Sixty seconds after an organization deploys Akonix L7 Enterprise, the administrator can create any policy needed, whether it's blocking all file transfers, limiting who employees can IM with or filtering for confidential information. Instantly that policy applies to any user or group of users, on any IM system used, across all the public IM networks and their internal enterprise IM system."



The Akonix L7 Enterprise offers amazing detailed controls for creating specific policies to manage instant messaging.

UPDATE

THE PRODUCT: In November 2004, Akonix launched L7 Enterprise 4.0, with support for Microsoft Office Live Communications Server 2005, connectivity with public IM networks and support for IBM Lotus Instant Messaging (formerly Same-time). Other enhancements include the ability to manage access to games, audio/video conferencing, application sharing and other features of public IM clients; the ability to support mobile and remote users; some load-balancing capabilities; enhanced anti-virus support; and the ability to customize user notifications by user, group or domain.

The company also released Version 3.1 of its Enforcer security software, adding capabilities to stop unauthorized IM and peer-to-peer file sharing. For example, Enforcer 3.1 can block transmission from the BitTorrent peer-to-peer network, popular for movie-sharing.

THE COMPANY: Akonix is a private company backed by venture capital firms Menlo Ventures, Mission Ventures, Palomar Ventures and Windward Ventures. According to Akonix, it added 190,000 seat licenses in the third quarter of 2004, ending the quarter with more than 500,000 seats at more than 400 customers. Company wins included Rochester Public Utilities and Ardsley Advisory Partners, a Connecticut investment firm. Akonix also spent the year fleshing out its management team, hiring Ron Hegli as vice president of engineering, Kip Quackenbush as vice president of worldwide sales, and Timothy Breidigan as vice president of business development.

FINALISTS

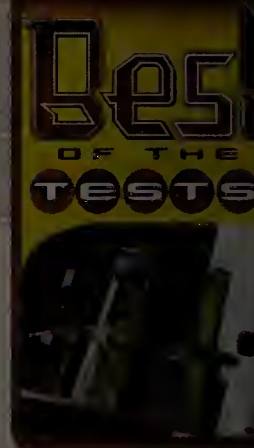
In our Clear Choice test, we found the **Oracle Collaboration Suite** offered a number of good tools (Web conferencing, e-mail, calendaring, file storage and content searching) for letting workers share information and find data within a company. Also impressive was the variety of methods — Web, desktop client, PDA or cell phone — Oracle supports for accessing the system (DocFinder: 6023).

The **Juniper NetScreen Secure Meeting Appliance** does what it was designed to do very well. It collected top scores in setup and management features, letting employees get meetings up and running quickly. The system makes sharing applications easy and provides great flexibility in letting participants control the meeting (DocFinder: 6024).

Microsoft Live Communications Server (we tested 2003, but Microsoft has since bumped up the name to 2005) impressed us with its ability to handle IM away from Exchange and the addition of presence features. We also liked the product for its ability to encrypt all traffic through Transport Layer Security and new archiving features that let you capture and archive all IM traffic (DocFinder: 6025).

LOOKING AHEAD

We plan to test the latest in e-mail compliance and archiving tools, to get the goods on products intended to help with compliance. And, we'll look into e-mail security tools and anti-phishing technologies. For Web conferencing, we plan on testing tools that accommodate meetings at the desktop rather than in the conference room (such as one-to-many has gone to one-to-one). For collaborative workspaces, we'll look at tools that could provide an alternative to e-mail in light of the overwhelming spam problem.





64

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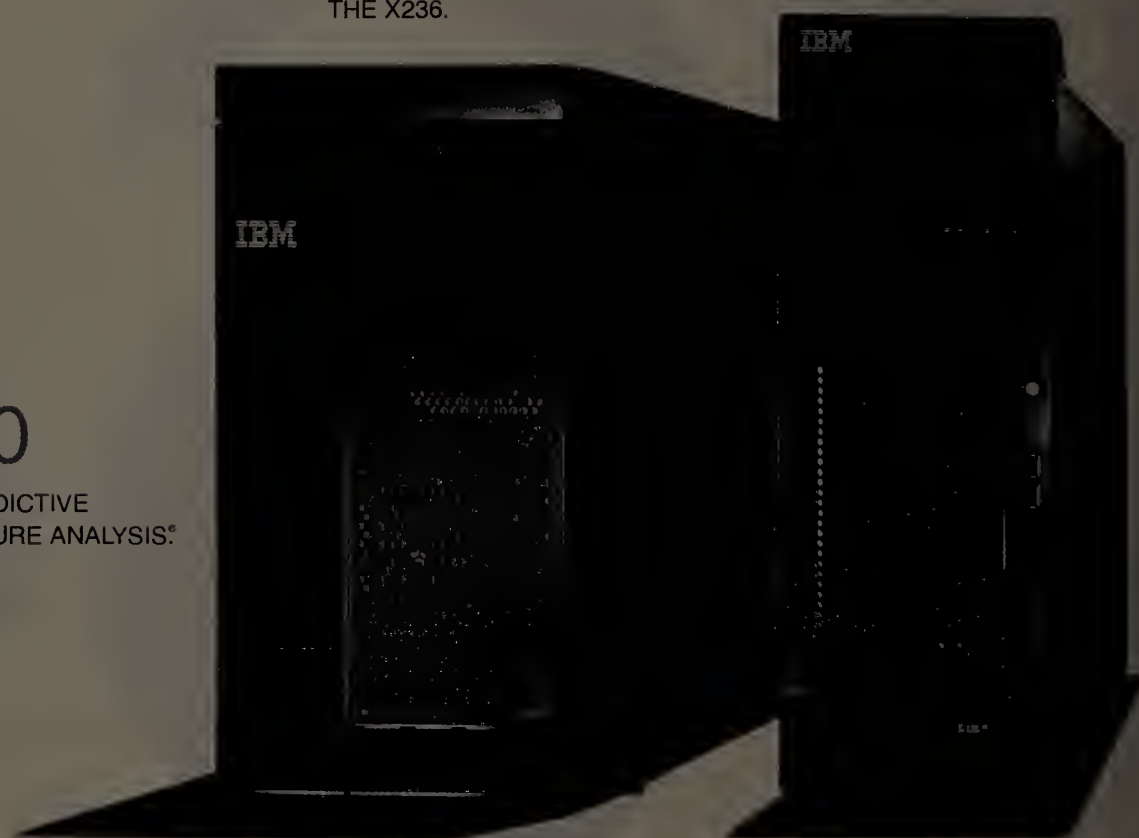
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THE X336.



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THE X346.

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Network infrastructure

Access routers, blade servers, dual WAN routers, Ethernet backbone and workgroup switches, wireless network gear.

WINNER: IBM's BladeCenter with HS20 Blade Server

The IBM BladeCenter is one of an emerging group of products that have evolved to accommodate more computing power inside shrinking data center spaces. These systems pull together multiple application servers, network switching devices and network storage appliances in a single, small footprint. And BladeCenter is accommodating, more so than the competitive server blade configurations we tested (DocFinder: 6026).

When it comes to raw Web and network I/O performance of the blade servers, IBM's BladeCenter chassis and HS20 Blade Server combination stands on par with competing products from HP and RLX Technologies. What puts BladeCenter above the rest is IBM Director, the most useful and flexible management application of the lot, says Thomas Henderson, a Network World Lab Alliance partner. Director supplements the functionality of the management module blade that plugs into the BladeCenter backbone and offers a wel-

come superset of functionality over those supplied in the module. It can help ease deployment and ongoing administration of the IBM blade system in large data centers and remote branch offices alike.

Using IBM Director, you can manage the BladeCenter chassis and all components including the Brocade Communications and QLogic storage-area network (SAN) and Cisco Ethernet switches that slide into it. The Director query process discovers each item sitting in the chassis, then delivers information about the devices to the Director database. The Director GUI then taps into that data to help administrators manage the components in great detail.

"Director is the greatest strength of the IBM BladeCenter and was a pleasure to use," Henderson notes.

PRODUCT MASTERMIND

THE MAN: Dhruv Desai, distinguished engineer

JOB DUTIES: He acts as lead system architect for BladeCenter.

FAVORITE FEATURE: BladeCenter's ability to integrate storage, networking and KVM/management switching inside the chassis, which means faster deployment times, fewer cables, lower cost and easier management.



IBM's BladeCenter system earned big points in our testing because of its unifying management tools.



UPDATE

THE PRODUCT: Since our August test, IBM has become even more accommodating with its BladeCenter system, bringing InfiniBand switching into its chassis via a partnership with Topspin Communications and supporting Layer 2-7 switching through a deal with Nortel. IBM also has opened its technical specification to partners wanting to design blades for plugging into BladeCenter.

Additionally, IBM has tailored its longtime UpdateXpress utility — a simple tool that helps push out server BIOS and code updates to its devices — so it can be used to update all portions of the BladeCenter, including server blades, expansion cards and management, storage and Ethernet switch modules. And, to let more legacy applications run on blade form factors, IBM released a PCI Expansion Unit that lets customers install two traditional PC cards into the same blade.

In October, IBM rolled out a new HS20 800 blade that supports a 64-bit Intel configuration featuring the Nocona processor and new small form factor SCSI hard disk drives for greater performance and capacity. At the same time, IBM introduced the JS20 PowerPC blade to the BladeCenter family. This lets Unix and Linux applications run side by side with Windows programs.

FINALISTS

Dell's PowerConnect 6024 Gigabit Ethernet Layer 3, 24-port switch earned a Clear Choice Award because of its fine mix of performance, features and price. Targeted for data center server connectivity, wiring closet aggregation and core switching for smaller networks or branch offices, this gear features serious routing protocol support, physical redundancy, QoS and access control lists, all for about \$3,500 (DocFinder: 6039).

Extreme Networks' Summit 400-48t earned its finalist spot because it pushes the bar on gigabit to the desktop. The switch's high port density, rich feature set and good performance make it a strong candidate for network managers looking to add capacity to their wiring closets (DocFinder: 6041).

HP's BL20p G2 Blade Server and BL30p Blade placed a strong second in our test of server blade combinations. The blade server, which posted strong individual blade performances, features many configuration and management tools for managing the server blades, and a number of other network and storage switches you can plug into the 6U server chassis (DocFinder: 6040).

LOOKING AHEAD

We've already published results of the industry's first-ever voice-over-WLAN gear test as part of our early 2005 testing lineup (DocFinder: 6027). On tap for later this year are comparative tests of new 10G bit/sec Ethernet backbone and workgroup switch/routers, a test of available products in the emerging XML router space and our ongoing series of server hardware tests.



Network management

Desktop and client management suites, network analysis tools, network configuration management products, network modeling wares, network performance analysis software, WAN/bandwidth management products.

- WINNER: • **Opnet Technologies' IT Guru 10.5**
• **Rendition Networks' TrueControl 3.0**

With two products in distinct categories separated by only 0.02 points on the score chart, we had to declare a tie. Opnet's IT Guru 10.5 and Rendition Networks' TrueControl 3.0 both deserve Best of the Tests distinction in network management. IT Guru 10.5 took the Clear Choice Award in our recent network modeling tools test with an extremely impressive 4.85, while TrueControl scored an equally remarkable 4.83 in our test of network configuration tools.

IT Guru

Network-modeling tools let designers or operators test changes to network topology before they get implemented in a production network. Lab Alliance member Jeffrey Fritz found IT Guru to be the most accomplished of the tested products, as it could scale easily to accommodate just about any production enterprise network and offers powerful tools for analyzing network issues.

The key for network modeling is the ability to match the generated network

model map to the real network topology. Events such as link failure, link changes, device failures, load changes, route changes and link overloading should be as accurate as possible. IT Guru handled these with aplomb — it could implement changes on the fly, and we could modify factors such as Open Shortest Path First link costs and OSPF timers and see results immediately.

IT Guru, a Best of the Tests winner last year for 9.0, is flexible, scalable and highly customizable. From a GUI, users can drag and drop several kinds of network topologies, creating a product that is sophisticated, powerful and complex. During testing, we found ourselves overwhelmed (in a good way) by its rich features and complexity (DocFinder: 6042).

TrueControl

The new network configuration management market consists of systems that correctly establish the existing configuration of a network, support a multi-ven-

FINALISTS

In our test of **AlterPoint's DeviceAuthority Suite**, we found the DeviceAuthority Server was the most important part. The server provides services such as user credential management, device version control and backup, and scheduling. We liked how the system could auto-discover each and every device on our network, and it had no problem correctly identifying and backing up configurations from mainstream Cisco devices (DocFinder: 6044).

Dorado Software's RedCell is an integrated suite of products that allows extensive discovery and management of network configurations. We liked how easy the system was to stop and restart, either through the command line or an icon in the system tray. The system could accurately ping and discover all the devices in our test network, and pick up our Cisco components. RedCell was a powerful system, chock full of features (DocFinder: 6048).

We found the **Peribit Networks SR-100 WAN** link compression appliance a great device for increasing network bandwidth without buying more capacity. The SR-100 scored well for its amazingly flexible scalability, a high degree of reliability, and

quick and painless installation. One impressive feature was the device's ability to compress data at one end of a link and fluff it back up at the other end (DocFinder: 6047).

Shunra Software's Shunra/Storm Version 3.1 for network modeling offers an impressive real-time simulator and excellent ability to model WAN links. We also enjoyed Shunra's use of Microsoft Visio as its user interface, and we liked the tool's ability to show us how applications and networks could be affected by bandwidth throttling, link limitations, packet delays and jitter (DocFinder: 6050).

Sourcefire's Real-time Network Awareness Sensor 2000 is like a magic eye that watches everything happening on your network. It combines passive network analysis with a Web-based management system, delivering a powerful tool to IT personnel who need more information about their networks. The information it obtained from our test network was quite accurate, providing excellent application identification (including finding obscure mail servers on non-standard ports). We liked how it gave us instant visibility into hosts, services and flows on our network, without any effect on the hosts or network (DocFinder: 6049).

Tripwire's Tripwire for Network Devices

builds on the company's file integrity assurance product, but goes further by incorporating support for network devices. We liked its built-in log viewer for isolating errors and its direct hooks for many major network management frameworks, including Computer Associates Unicenter, HP OpenView and IBM Tivoli. Another noteworthy point is that the company claims to support more than 100,000 devices (DocFinder: 6046).

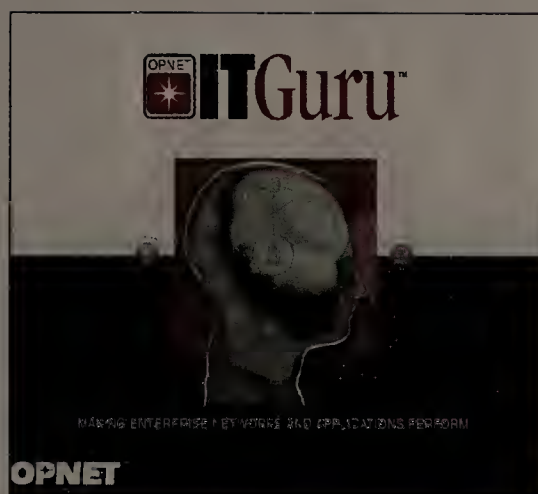
Voyence's VoyenceControl veered a bit from the network configuration norm. Voyence sends customers a proof-of-concept document to gather as much information as possible about the network before shipping and installing its product. Customers then can have Voyence provide the hardware (loaded with VoyenceControl software), or Voyence can install on-site with customer-purchased hardware. We gave the system high marks for its superb mix of simplicity and functionality. It had an easy-to-understand GUI for discovery and management of network devices, and we easily could view data gathered from the devices. VoyenceControl also had a unique integration with MapQuest that can generate logical and geographical maps from where your network devices are located (DocFinder: 6045).



dor network infrastructure, let administrators make one-time changes or automated changes based on policies, cooperate with current network management and security systems, and provide data through a good management console.

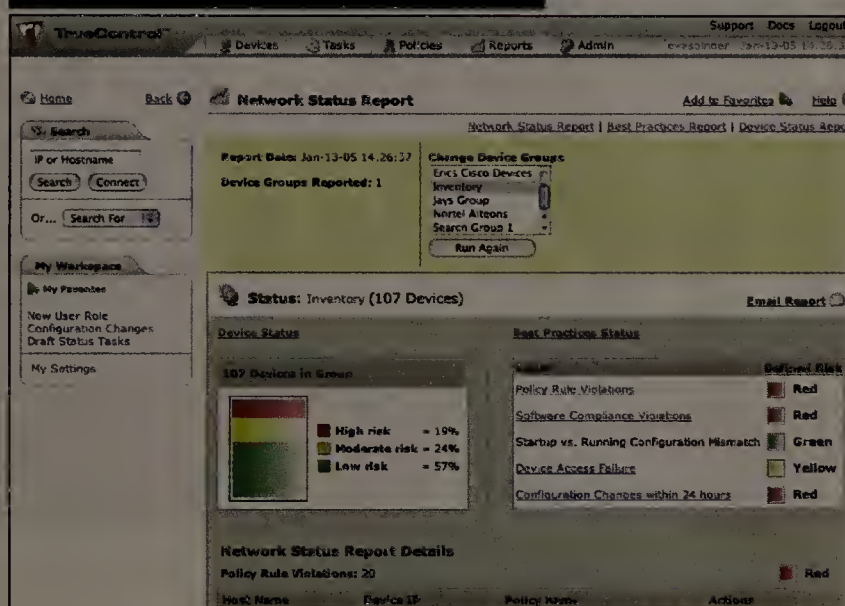
TrueControl (renamed Opsware Network Automation System with the Opsware acquisition of Rendition) won for providing a wealth of detailed information and a robust search capability and security model, and for a great mix of compliance-detection and top-notch reporting capabilities.

TrueControl provided excellent search, auditing and report capabilities, with devices, modules, configurations, tasks, sessions and events all checkable against specified criteria. It made changes to the start-up and running configurations of our network devices. Groups of equipment could be created to monitor and change configuration on a more easily managed basis. The system could deploy user and SNMP passwords, which eases a once-arduous task (DocFinder: 6043).



Opnet's **IT Guru 10.5** provides a great, scalable model for tracking network topology.

We were impressed with Rendition's **TrueControl** outstanding search capabilities.



UPDATE

Opnet

THE PRODUCT: IT Guru 11.0, which became generally available in December 2004, adds an open product architecture that supports several new third-party integrations and enables capacity planning for distributed systems and mainframe environments. System workload and performance information now can be imported from tools by BMC Software, Concord Communications, HP, IBM and NetIQ, and from XML, Opnet says.

THE COMPANY: In October 2004, Opnet acquired all assets of Altaworks, including two commercially available software products. Through the acquisition, Opnet gains advanced correlation and analysis technologies.

Rendition/Opsware

THE PRODUCT: TrueControl/Opsware Network Automation System has gone through a number of revisions since our test. In June 2004, Version 3.1 added ScriptMaster Technology, which lets companies leverage the expertise of advanced engineers by automatically converting sessions and commands they issue into error-free scripts that can be used to manage thousands of devices at once. In October, the 3.2 version added SecurID and TACACS authentication integration, giving TrueControl stronger two-factor authentication capabilities, and a Compliance Center. This latter was designed to provide out-of-the-box compliance evidence generation for Sarbanes-Oxley and IT best practices frameworks. Version 4.0, due this quarter, will add workflow and approvals features, so organizations can manage approval for device changes, chain tasks into multitask jobs and manage draft tasks. Other features include ACL management, SingleView and SingleSearch (one central location from which to obtain information on network devices, increasing the visibility to changes for improving compliance), and an improved user interface (designed around task-based workflow).

THE COMPANY: The acquisition of Rendition by Opsware, announced in December, closed this month.

PRODUCT MASTERMINDS

THE MAN: Alain Cohen, president and CTO, Opnet Technologies

FAVORITE FEATURE: "My favorite feature is what we think of as 'operational modeling.' Users can use IT Guru models to do predictive planning and also to manage their production infrastructure. For example, users can troubleshoot application performance with captured traffic, then use the samples to plan new app deployments. Or they can do a network audit for compliance and security analysis, then use the captured information to model capacity."

THE MAN: Eric Johnson, CTO at Rendition, vice president of engineering at Opsware

FAVORITE FEATURE: "Real-time Change Direction. This was one of our early innovative features and helped set the tone for the emerging network configuration control category. Periodic polling just isn't enough any more. To get real operational value, you need real-time information. Real-time change detection has been fundamental to many of the other critical product features, such as policy assurance, compliance reporting and access control list management."

LOOKING AHEAD

We've plenty of tests to consider in the network management area, as always. We plan on examining WAN link management, bandwidth management, application performance monitoring and various other enterprise network monitoring and analysis tools. We also plan to revisit IP address management tools.

Security infrastructure

Authentication servers, intrusion-prevention systems, IPSec VPNs, security appliances, SSL VPNs.

QES
OF THE
TESTS

WINNER: Juniper's NetScreen-SA 5000

The point of an SSL VPN is to give users easy remote access to all the applications they know and love.

In our first test of these gateway products, NetScreen (Juniper bought NetScreen Technologies after we tested the product) narrowly edged out the Nokia Secure Access System to top the list of the seven SSL VPN gateways tested (DocFinder: 6051). Based on testing completed by Network

World Lab Alliance member Joel Snyder, the NetScreen device garnered the win based on high overall interoperability results, good access control mechanisms and outstanding application support.

On the latter, the NetScreen-SA 5000 offered a strong mix of application translation, terminal emulation, port forwarding and network extension and application layer gateway mechanisms to let users tap into a number of network programs over an SSL link. In all, we tested NetScreen's interoperability against 20 enterprise applications. NetScreen hit the inter-



The **NetScreen-SA 5000** SSL VPN gateway landed in the winners' circle because of its outstanding application support and strong access control mechanisms.

operability mark on 100% of the basic Web-based programs and 78% of the file service-based applications tested. In addition, NetScreen offers quite a few "thin-client" options to support cross-platform users.

In terms of controlling access, the NetScreen box has strong Lightweight Directory Access Protocol directory and RADIUS server connections, offers an innovative mail pass-through authentication feature and gives an administrator good control over SSL security settings.

PRODUCT MASTERMIND

THE WOMAN: Vivian Ganitsky, product director

JOB DUTIES: She manages the team responsible for setting the strategy for new security enterprise products and driving products' life cycle from definition to launch, deployment and customer support.

FAVORITE FEATURE: "My favorite feature is dynamic access privilege management, particularly the value that we bring to customers [when this feature is] combined with our endpoint security capabilities."



UPDATE

THE PRODUCT: Just after we tested the SA-5000, NetScreen upgraded the product to provide a host of new access privilege management features, streamlined administration capabilities, detailed role-based delegation of management tasks and a highly customizable user interface. At the same time, NetScreen rolled out NetScreen Secure Access Central Manager, a unified policy and configuration management product for centrally controlling multiple SSL gateways.

Since finalizing the NetScreen acquisition in April, Juniper has added Security Assertion Markup Language support and single sign-on capabilities to its SSL VPN products. In a December point release, it added Korean and Spanish language ties, provisioning tools, integration with Citrix, secure online meeting and Microsoft Outlook calendaring applications.

THE COMPANY: Juniper's \$4 billion stock buyout of NetScreen was pretty much the big news. However, the company also announced its Juniper Endpoint Defense Initiative (yes, it uses JEDI as the acronym) to help tie its products to the emerging class of endpoint security products from Sygate Technologies, Symantec and WholeSecurity. Juniper also reported picking up big customer wins with the European Investment Bank, Legal Services for New York City and Baoviet Insurance.

FINALISTS

Because our assumption for testing SSL VPNs early last year was that they must fit into existing networks, determining which one is best for your network truly does depend on your environment.

To that end, you can use our security infrastructure finalists on a short list of products that deserve a closer comparison against your specific requirements.

F5 Networks' FirePass Controller 4000 makes the short list because of the broad range of applications and authentication methods it supports, its delegated management and outstanding reporting/logging features, and its virus-scanning features.

The **Nokia Secure Access System** earned its finalist spot because it offers outstanding fine-grained access control, very good authentication support including certificates and group-mapping features and smart break-in/evasion features.

The **Symantec Clientless VPN Gateway** offers an excellent access control model and configurability, and its real-time status and management tools are well done (DocFinder: 6051).

LOOKING AHEAD

This year we will tackle the prickly issue of measuring performance of IPSs and test advances in SSL VPN wares. Additionally, we'll test anomaly detection-based intrusion-detection systems and all-in-one security appliances.

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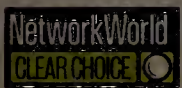
NetDoctor's extensive rule suites are open, so you can incorporate your own configuration best practices.



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Security management

Anti-spy software, anti-virus management software, endpoint security tools, patch management wares, policy auditing and compliance software, security event management products, Secure Shell management servers, vulnerability assessment and management products.

WINNER: Preventsys' Network Audit and Policy Assurance System

You can't do much better than this.

This Preventsys product has the distinction of being one of the highest scorers — posting a 4.9 out of a possible five points — ever in a *Network World* test (DocFinder: 6052).

The Network Audit and Policy Assurance System (renamed Preventsys Policy and Regulatory Compliance module in a September upgrade) slides

into the overall Preventsys Enterprise Security System. The module looks for systems that are out of compliance by comparing the results of vulnerability-assessment scans, collected from a variety of sources, against defined security policy.

Network World Lab Alliance member Mandy Andress gave Preventsys high points across the board for its elastic configurability, its ability to tap into existing policy standards and to create new standards, its plethora of reporting options and its expanding remediation measures.

Andress contends this security management tool could be just what the doctor ordered to help corporations deal with the Health Insurance Portability and Accountability Act (HIPAA) and Sarbanes-Oxley (SOX) compliance regulations.

The module has a pretty hefty price tag — starting at \$65,000 for the first 1,000 nodes and ranging to \$375,000 for 20,000 nodes. But Preventsys has included a feature that could help turn cost justification into a non-issue. This integrated feature calculates the financial risk should any of the systems it finds vulnerable be compromised.

PRODUCT MASTERMIND

THE MAN: Patrick Ravenel, senior vice president, engineering

JOB DUTIES: Manages the technical direction of Preventsys products and services and drives technology initiatives.

FAVORITE FEATURE: "Our programmable correlation and analysis engine — the SMART Engine — is at the heart of both our threat exposure and policy compliance analysis functions. It correlates the results of tens of thousands of disparate network and vulnerability tests together dynamically, without relying on hard-coded mapping like security event management products."



LOOKING AHEAD

We'll continue our testing of tools that help IT lock down distributed client machines. One endpoint security test will focus on products that help set and enforce policy regarding what programs the system trying to connect to the network must — or must not — have installed to gain access. A second test will focus on products that supply client security for mobile devices. Other security management topics we plan to address include patch management, anti-phishing and vulnerability alerting (see DocFinder: 6080). This year, our coverage of the NetWorld+Interop iLabs testing will hone in on the use of 802.1X for managing secure access in wired and wireless networks.

Best
OF THE
TESTS



UPDATE

THE PRODUCT: Along with its newly named product, Preventsys now ships updated NIST and NSA configuration standards, and new SOX, HIPAA, FISMA and GLBA, FFIEC and NERC controls and rules. It also has spiffed up reporting, now offering additional compliance reports, comparative reporting and an updated policy recommendation engine.

Additionally, the system now ships with new connectors to network scanners including Internet Security Systems SiteProtector, Qualys QualysGuard and Preventsys Network Architecture Assessor and the application scanner AppDetective from Application Security, Preventsys' own Wi-Fi and Windows registry scanners, Cisco Security Agent software and any IDS based on open source Snort code.

Finally, Preventsys has built a new Preemptive Threat Defense module that plugs into its overall system. It takes data from the scans, correlates the information, prioritizes mitigation tasks and automates security remediation activities to eliminate the root cause of exposure.

THE COMPANY: In February 2004, Preventsys closed \$3 million in Series B funding and hired Tom Rowley, former cofounder and CEO of Counterpane Internet Security, as CEO. In May, Alex Lazar, formerly program director for security at IBM, joined as vice president of sales. In July, Preventsys announced a formal partnership with SAIC to better service government customers, and in September it launched a new partner program. Customer wins include Bacardi, Qualcomm and St. John Health System.

FINALISTS

Configuresoft's Enterprise Configuration Manager Version 4.5.2 won Clear Choice honors as one of the best Windows-centric programs we've tested for helping to configure desktop and server systems securely. Specifically, the product earned accolades for its intuitive interface, great flexibility and automatic compliance functionality (DocFinder: 6053).

EEye Digital Security's Blink 1.0, a brand-new product, swept the competition in our first-ever test of endpoint security products. It earned top honors based on its solid reporting and its hybrid approach to client defense (DocFinder: 6054).

Lockdown Networks' Lockdown Auditor 3.0 was a top performer in our vulnerability management test because of its easy to drive front end, intuitive workflow system and excellent vulnerability notification capability. However, network-scanning capabilities need some upgrading (DocFinder: 6055).

NCircle Network Security's IP360 Vulnerability Management System earned high honors in our vulnerability assessment

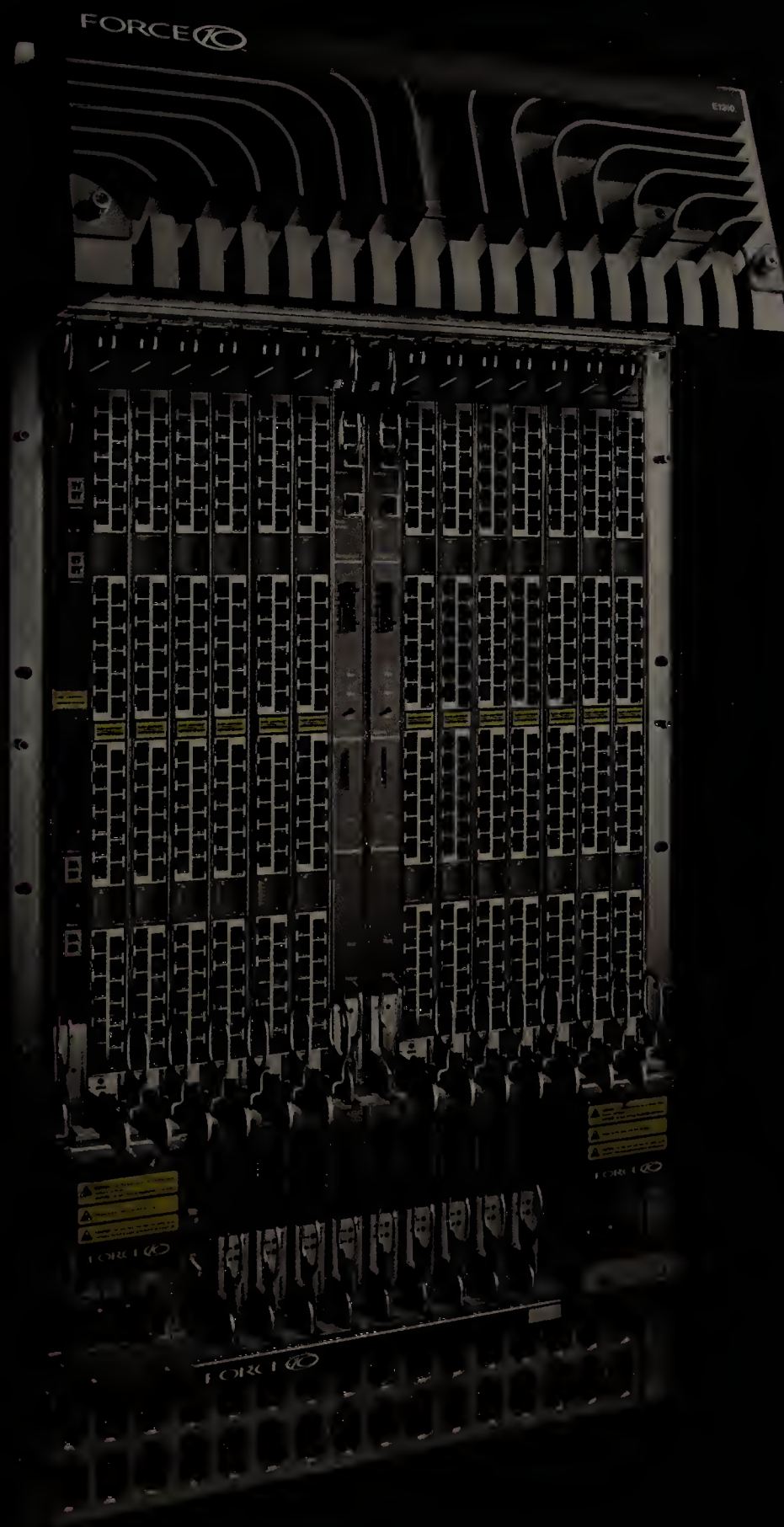
See Finalists, page 56

Fastest Throughput

Most Secure

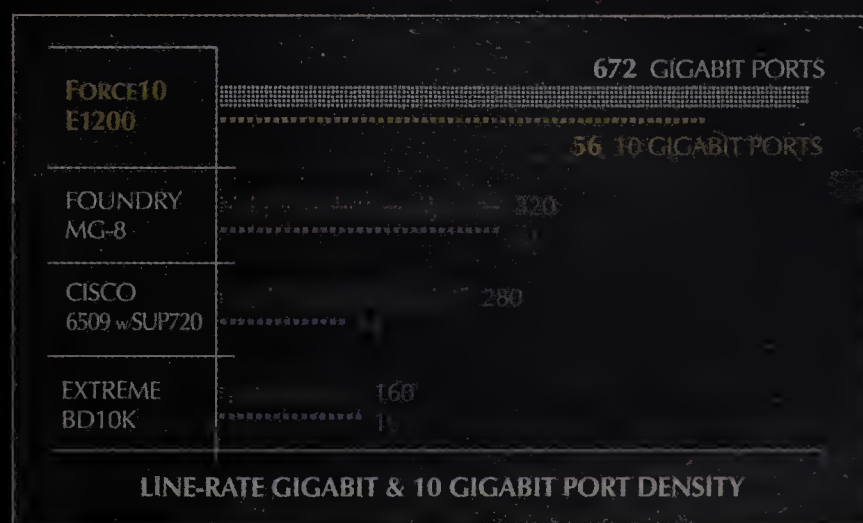
Highest Density

Greatest Resiliency



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Finalists

continued from page 54

and management test for providing the best business impact and risk-rating features of the eight products tested. It offers unparalleled levels of

detail on what it might cost your company if holes aren't patched and resources become compromised (DocFinder: 6056).

Pedestal Software's Security-Expressions 3.1 audits networked

systems based on a predefined set of rules, letting organizations easily identify computers and other devices that do not conform to a defined corporate security policy.

This agentless product's flexibility

and ease of use make it a strong tool for automating security compliance reviews in an enterprise network (DocFinder: 6057).

Qualys' QualysGuard 3.3 — a service offering — collected the Clear Choice honors in our vulnerability management test for accurately tackling the nuts and bolts of network scanning and offering the necessary vulnerability management wares that are pushing this class of products forward (DocFinder: 6058).

SSH Communications' Tectia Client and Server Version 4.0, the company's upgraded Secure Shell client and server combination, is easy to use; provides convenient, restartable file transfers; and offers more GUI features than competing commercial and open source SSH implementations (DocFinder: 6059).

Tech Assist's Omniquad AntiSpy Enterprise Edition earned its spot as a finalist because it pinpointed all of the spyware we threw at it during testing. Plus, the software provides good central control of companywide spyware scans (DocFinder: 6060).

Visionael's Enterprise Security Protector provides some of the best vulnerability management functionality we saw in our testing of these products. One reason is Visionael uses the Nessus open source scanning tool as its underlying scanning engine, thereby focusing development efforts on vulnerability management functionality.

For example, this product provides a customizable portal for viewing information on identified vulnerabilities, current risk level, trending and troubleticket status (DocFinder: 6061).

Webroot Software's Spy Sweeper Enterprise 1.5 earned a Clear Choice Award as the best anti-spyware tool in our tests. It contained the most spyware definitions, gave us excellent control over its client agents from a central console, ran quickly and unobtrusively, had an intuitive user interface and displayed useful activity reports (DocFinder: 6062).

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RIVERBED

Storage

Director-class multi-protocol switches, workgroup switches, disaster-recovery tools.

WINNER: Cisco's MDS 9509

The Cisco MDS 9509 is a repeat offender, but we mean that in the nicest of ways. For the second year running, this director-class storage switch (packed with 112 ports of 2G bit/sec Fibre Channel) has captured the top pick in this category for its combination of innovative features, strong performance and fantastic management wares (DocFinder: 6063).

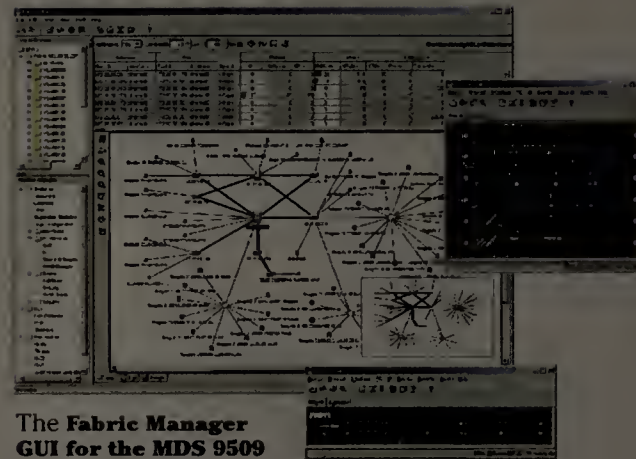
"While we can't call it perfect, we can say it's the [director-class SAN switch] the competition has to beat," wrote Edwin Mier, a Network World Lab Alliance member. We retested the MDS 9509 in what we had expected to be a comparative test with like models from competitors Brocade and McData, but those two companies declined to participate.

The 9509 supports up to seven hot-swappable line cards that can be any mixture of 16- or 32-port, 2G bit/sec Fibre Channel Switching Modules. An eight-port Gigabit Ethernet IP Storage Module lets users directly integrate popular storage-over-IP connections with the Fibre Channel fabric. The Cisco switch delivers the survivability users expect at the core of their SAN fabric:

redundant, hot-swappable management/fabric-control cards and power supplies.

The Cisco Fabric Manager GUI offers an extensive range of useful configuration capabilities. But most impressive is the copy-and-paste configuration, which lets the user select any configured switch and apply all the same settings to any other switch. The Fabric Manager also can readily push new software images onto one or a group of switches.

Cisco also offers its proprietary storage equivalent to virtual LANs, called VSANs, which separates groups of ports into discrete "virtual fabrics." This isolates each VSAN group from the disruptive effects of fabric reconvergence that might occur in another VSAN. And, as with VLANs, routing is used to forward frames between initiator and target (SAN source and destination) pairs in different VSANs.



The Fabric Manager GUI for the MDS 9509 offers an extensive range of useful switch configuration capabilities, including a copy-and-paste feature that simplifies setting up multiple boxes.

Best
OF THE
TESTS

UPDATE

THE PRODUCT: Since testing last May, Cisco has upgraded its MDS 9509 to support hardware IPSec encryption for Fibre Channel over IP and iSCSI, hardware compression for more efficient transport of storage traffic and tape acceleration, which improves the performance of and extends distances for remote backups. Cisco also has extended buffer credits to up to 3,500 per port, a development that lets the MDS 9509 extend Fibre Channel traffic natively over dark fiber or over SONET/synchronous digital hierarchy network links. Practically speaking, storage administrators now can send Fibre Channel frames up to about 2,175 miles from one data center to another using this capability.

On the management front, Cisco offers its SAN Extension Tuner, which helps storage administrators fine-tune traffic when sending and receiving storage traffic over long distances. Lastly, Cisco introduced SANTap, a protocol-based interface that lets appliance-based storage applications run over highly available, high-performance MDS 9000 fabrics.

THE COMPANY: Cisco introduced Storage Specialization, a training and certification program aimed to help qualified reseller partners better understand the key features and benefits of the MDS 9000 platform. Cisco also introduced a storage network-focused version of its Cisco Certified Internetworking Expert program.

FINALISTS

Lefthand Networks' SAN/iQ Software, NSI Software's Double-Take for Windows and XOSoft's WANSync HA Exchange all pulled in high marks in our test of disaster-recovery tools specifically geared for Microsoft Exchange networks.

Lefthand Networks' SAN/iQ Software provided the full-meal deal for this test in the form of a SAN running its SAN/iQ Remote IP Copy application. The disaster-recovery tools are tightly integrated with the supplied storage gear, the system is very manageable, and it affords fast data replication (DocFinder: 6064).

NSI Software's Double-Take for Windows offered a great management console and posted a strong finish in our data availability tests.

XOSoft's WANSync HA Exchange earned its spot on the finalist list because it adapted quickly to our setup, presented clear Exchange installation-specific options, and required no subsequent intervention to complete the processes of failover detection, failover and bringing our hotsite/back-up site online.

PRODUCT MASTERMIND

THE MAN: Luca Cafiero, general manager of the Data Center, Switching and Wireless Technologies Group

JOB DUTIES: Cafiero led the design concept, engineering and other product development aspects since the inception of the MDS 9000 in January 2001. He is now the general manager of the technology group that manufactures and markets the MDS 9000 SAN switches.

FAVORITE FEATURE: "Virtual SANs, because it was the first feature of its kind for the storage industry. It has revolutionized how SAN administrators design, build and manage their storage networks. If imitation is indeed the sincerest form of flattery, VSANs have truly been well accepted given the number of me-too features from other vendors."



LOOKING AHEAD

This year we are working to get Brocade and McData to submit director-class switches for testing. Additionally, we are working on a test of storage management software, plan on giving iSCSI storage gear a turn in the labs and plan to test more continuous protection products in a variety of application scenarios.

Age Group	Total (%)	Female (%)	Male (%)	Non-Hispanic (%)	Hispanic (%)
18-24	~12	~10	~8	~11	~5
25-34	~18	~16	~14	~17	~8
35-44	~22	~20	~18	~21	~10
45-54	~25	~23	~21	~24	~12
55-64	~20	~18	~16	~19	~10
65-74	~15	~13	~11	~14	~7
75+	~10	~8	~6	~9	~4

100

[illegible]

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und Video-System, um gesichert zu
werden. Die Teilnehmer müssen sich
bevorher mit der Polizei abstimmen.
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überwacht.

[illegible]

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Web infrastructure

Web application firewalls, Web application monitoring tools, Web front-end devices.

WINNER: Teros' Secure Application Gateway 100SSL

We picked the Teros Secure Application Gateway 100SSL as a winner because it's got both security and style.

When we tested this product last spring, Network World Lab Alliance member Thomas Powell noted this Web application firewall appliance offers a "a nice blend of positive and negative firewall model features that should be capable of protecting all but the most sensitive applications." Specifically, we found the Teros 100 capable of detecting and blocking all the common Web site attacks including forceful browsing, SQL injection, form-field tampering, cookie tampering and cross-site scripting (DocFinder: 6065).

This product firmly embraces the notion of federated management roles. The Teros management tools allow for a clear division between tasks that a device administrator needs to handle and tasks over which an application administrator must have purview. "This approach to management makes Teros ideally suited for multisite, hosted environments or a large-scale corporation with multiple sites and owners," Powell said.

On top of its solid security infrastructure, the Teros 100 sports a highly polished Web-based interface and offers a number of features that address content integrity and performance.

Another particularly positive aspect is that the Teros box addresses the unthinkable — a site or application breach. A variety of features help mitigate the fallout from potential intrusions or site errors. To thwart site defacement, the device can checksum static pages and prevent delivery if they've been modified.

The Teros device also lets you filter pages for specific words and offers some built-in filters to protect against illicitly placed information. The device can detect for common data formats such as credit card or Social Security numbers.

The Teros 100 has built-in acceleration features, including HTTP encoding using the gzip open source data compression tool, SSL acceleration and connection offloading. Given that application security checks will add overhead to site response times, these efforts to mitigate the issue are nice to see.

PRODUCT MASTERMIND

THE MAN: Abhishek Chauhan, co-founder and CTO

JOB DUTIES: Leads technology and product strategy, direction and development for all Teros' Application Security Appliances.

FAVORITE FEATURE: Business Object Protection. The ability of the Teros Gateway to identify and block user-defined confidential business objects (for example, credit card, Social Security and bank account numbers) in Web server responses. The Teros Gateway then can remove or mask the information in Web server responses.



The Teros Secure Application Gateway 100SSL helps lock out unwanted intruders looking to compromise Web content without affecting performance.

UPDATE

THE PRODUCT: Since we tested the Teros Secure Application Gateway 100SSL Version 3.1 last spring, Teros has added support for identity and access management features. Specifically, Teros has partnered with Computer Associates' Neteegrity division to provide links to its SiteMinder single sign-on product, which prevents users authenticated by SiteMinder from exploiting vulnerabilities in application code during a SiteMinder session. Teros also has introduced anti-fraud capabilities and has streamlined its security policy configuration processes for the products.

Additionally, Teros introduced the FireLine Web application gateway for midmarket companies. FireLine features a streamlined user interface that enables a one-hour deployment.

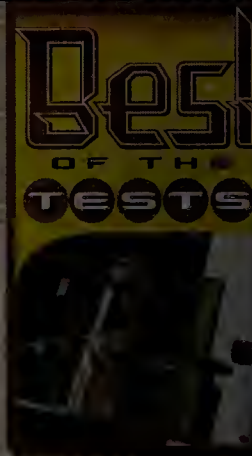
THE COMPANY: Teros picked up two executives — Dave Jevans, founder and chairman of the Anti-Phishing Working Group, as marketing vice president, and longtime sales executive Bill Moore, most recently executive vice president of sales and services for Primus Knowledge Solutions, as head of global sales. The company has become widely known as a leader in the rapidly growing application security firewall market.

FINALISTS

Redline Networks' EIX 3250 was the top performer in our inaugural tests of Web front-end devices, new appliances that sit in front of Web server farms and use a variety of techniques to help deal with growing traffic and security concerns. The Redline EIX 3250 excelled in our compression and TCP offload tests, and addressed important Web application compatibility details. Additionally, Redline's powerful OverDrive technology allows highly customizable rewriting of inbound and outbound data, which can be used to improve security, make sites more adaptable to changes and even improve performance (DocFinder: 6066).

LOOKING AHEAD

We will continue our first-of-its-kind testing track on the emerging Web front-end device market, this time pushing these boxes to their performance limits. We also are working on a comparative test of Web monitoring tools and will test some of the more unique Web site usability assessment tools.



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wireless & mobility

Location-based security systems for WLANs, mobile middleware, WLAN management and monitoring.

WINNER: Aligo's Omni Mobile Platform 2nd Edition

WLANs are at a crossroads, as many companies have made their infrastructure decisions and now desperately need tools and services to help manage, control or secure these new networks. To that end, we focused the bulk of our testing on a variety of new WLAN management and monitoring tools aiming to do just that.

While a number of strong contenders populated that wireless arena (see "Finalists," this page), we give our Best of the Tests Award in this category to Aligo's Omni Mobile platform. This mobile middleware helps you take applications and make them ready for mobile devices (any device, on any network).

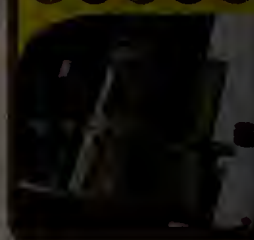
The nod goes to Aligo because of its outstanding performance in our testing and its overall push to move mobile networking to a higher level. After all, having a new WLAN in place and a bunch of new devices in your users' hands doesn't help move the company's bottom line if you can't access your business applications with those new devices or across these new networks.

Lab Alliance member Barry Nance found that Aligo's Omni Mobile Platform had the best environment for building, deploying and managing mobile applications (DocFinder: 6067). The

system supports virtually every type of wireless handheld device, running — by virtue of its Java application server architecture — on many platforms.

It has a visual design environment that made building and reviewing the design of mobile applications a breeze. Imagine an IBM WebSphere or BEA Systems WebLogic environment especially geared to wireless handheld clients, add a visual design development tool and voilà! You have Omni Mobile Platform.

Best
OF THE
TESTS

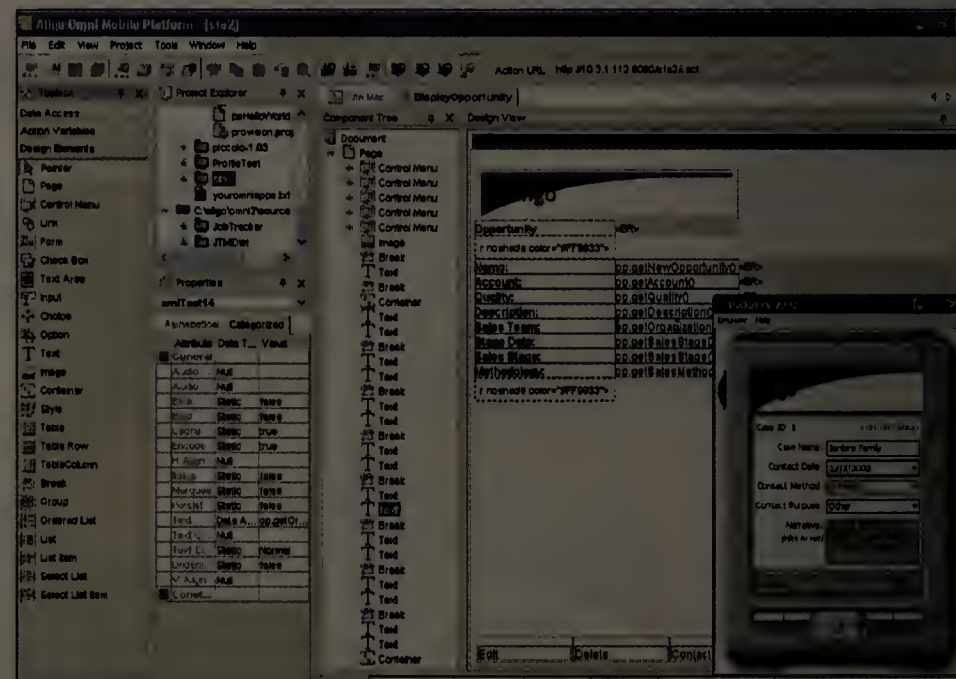


FINALISTS

AirMagnet continues to amaze and surprise us with its products, and **AirMagnet Distributed 4.0** version of its WLAN management suite was no different. AirMagnet uses a combination of proprietary access points and notebook-based sensors to help assess an 802.11a, b or g area. The product has an outstanding GUI and covers several 802.11-specific problem areas, such as detecting rogue access points, interference issues, conversion errors (an 802.11g access point not transitioning to 802.11b), and finding access points that have gone offline and need to be rebooted, for maintaining a dispersed WLAN (DocFinder: 6068).

Extended Systems' OneBridge Mobile Solutions Platform, another mobile middleware entrant, won plaudits in our testing for having excellent device support and a scalable, server-neutral platform. We also liked the product's facilitated discovery process, which helps companies that are just beginning to mobilize their applications. The product makes sure you thoroughly contemplate the effect on each individual application data item as it transitions between connected and disconnected states (DocFinder: 6070).

Newbury Networks' Watchdog could fit well into the security category, as the main purpose of the system is to help prevent unauthorized WLAN users from using your network. The system uses Newbury's outstanding location-based technology to pinpoint where WLAN requests are coming from, and then can "block off" areas where only authorized users can connect. This is like building an invisible fence for your WLAN, and only those users who are inside the "fence" can work. Neat stuff (DocFinder: 6069).



Aligo's **Omni Mobile Platform** has a visual design environment that generates code.

UPDATE

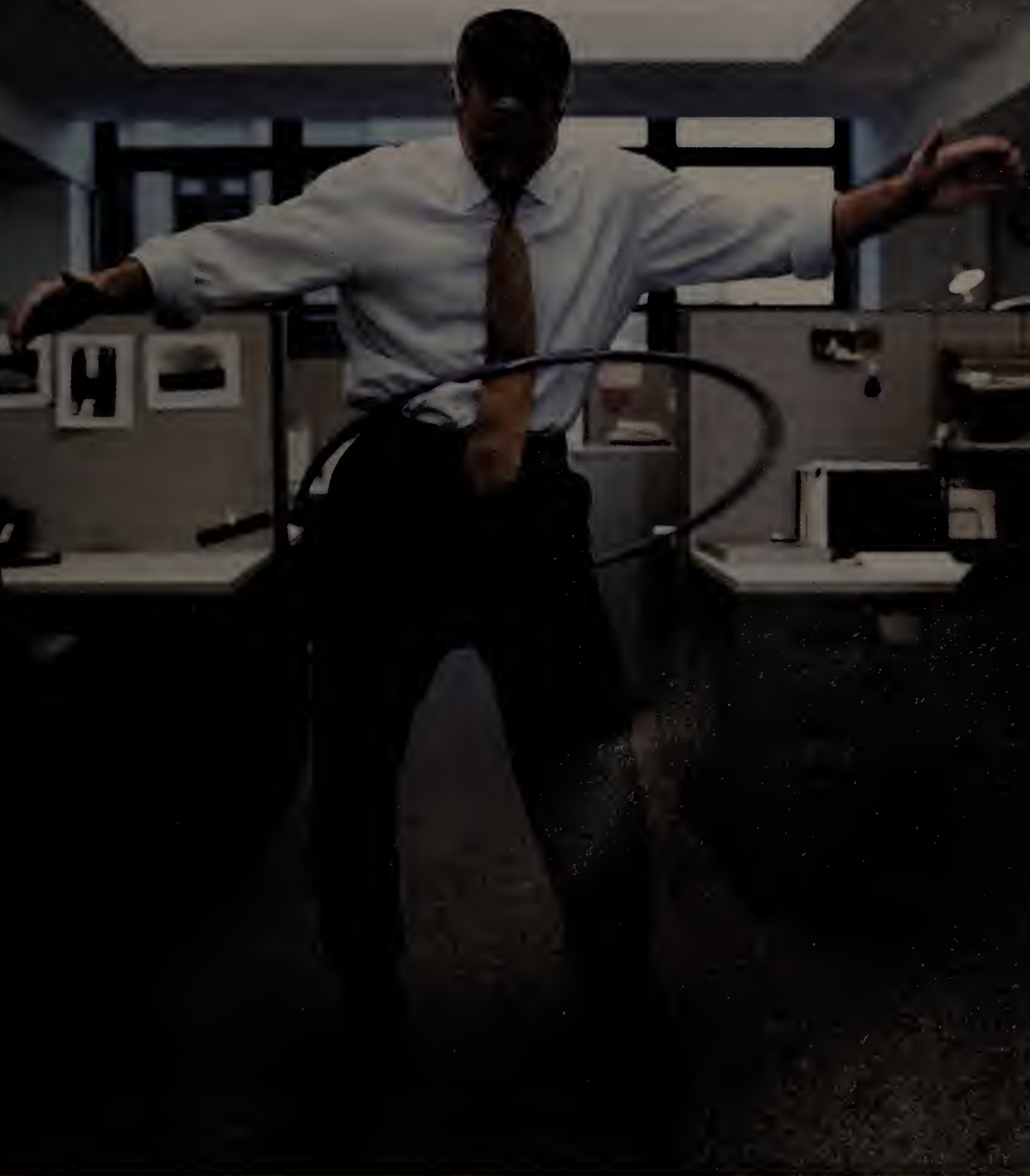
THE PRODUCT: Aligo has not released any new product updates or enhancements since we tested the Omni Mobile Platform early last year.

THE COMPANY: Aligo last month announced the completion of its acquisition of H2 Technologies, a developer of service management, dispatching and mobile field service software. With the acquisition, Aligo grew its customer base to more than 1,200 and improved channel relationships, the company says. John McCarthy, former H2 CEO, becomes vice president of sales for Aligo. Also in January, the company named Emerick Woods, most recently a venture capitalist, as its new CEO. Woods replaces Robert Smith, who left the company.

LOOKING AHEAD

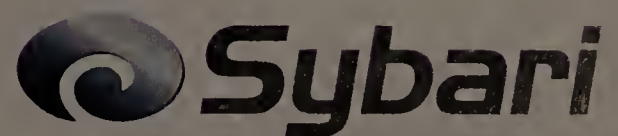
The funny thing about WLAN infrastructures is that all the innovations are first handled by the home and small office/home office markets (pre-802.11n, a/b/g infrastructures). Still, we plan to get back to testing infrastructure in the wireless space in 2005, tackling the new wireless mesh technologies or even some WiMAX systems, and more wireless performance testing. WLAN monitoring, security and management are also high on our list of test subjects.

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Testing outside the box

Four special Clear Choice Tests push the limits of what products can do.

BY CHRISTINE BURNS

In the majority of Network World Clear Choice Tests, the bottom line is a firm recommendation of which comparable product offers the top performance, the best management wares and the most useful feature set. But in some test cases, the question of which product is best is better answered with "it depends" — it depends on the technology, it depends on your network, it depends on your users' requirements, and it depends on your budget.

In 2004, four tests fell into that category. In these tests, we examined a new breed of intrusion-prevention system (IPS); delved into the security of two VoIP configurations; completed a survey of where wireless gear stands up and falls down on security; and put a record-breaking number of anti-spam software, appliance and service products through the wringer. Because of the nature of these tests, naming absolute winners wasn't possible. But that's not to say that some of these products aren't worthy for this year's Best Products portfolio.

IPS 'In the Wild'

For our first-ever "In the Wild" IPS test last February, we spent five months testing 11 products on a live distributed network (www.nwfusion.com, DocFinder: 6071). We examined what these products could detect, how powerful and flexible they were in blocking traffic, and how their management systems supported real network topologies.

In our test, conducted in concert by Lab Alliance members David Newman, Joel Snyder and Rodney Thayer, Top Layer Networks' Attack Mitigator IPS 100 and Captus Networks' Captus IPS 4100XT got top ratings among rate-based IPS products, which block traffic based on load. With a clear focus on the problem of denial of service and distributed DoS attacks, Top Layer brings together all the tools needed to protect against the widest variety of intentional and unintentional problems. Captus' product had an astonishing level of detail and control when it comes to managing packet flows.

For content-based IPS products, which block traffic based on attack signatures and protocol anomalies, the short list comprises TippingPoint Technologies' UnityOne-200 Intrusion Prevention Appliance, Internet Security Systems' (ISS) Proventia G200 and NetScreen Technologies' (now Juniper's) NetScreen-IDP 100.

With a clear interest in core-of-the-network implementation, UnityOne offers a good base for a simple IPS. TippingPoint — recently bought by 3Com — didn't stand out with flashy features, but the architecture of the product and the capabilities it did offer make it worth watching.

NetScreen's implementation stood out for its rule-based configuration that makes tuning easy, its well-thought-out policy settings and its honey-pot and high-availability features. Likewise, ISS' inclusion of full intrusion-detection system, excellent forensics tools and a nicely designed attack reaction policy shows a serious understanding of what an IPS should do.

Testing the VoIP security waters

Will security issues be the death of VoIP? That's the underlying question we posed in our industry-first test of VoIP security implementations. We had testers inside and outside of these networks trying to get to the packets on the wire. (DocFinder: 6072).

Only Cisco and Avaya stepped up to the chal-

lenge. The objective was to disrupt phone communications. Via the data and IP phone connections, the attack team used scanning tools and other techniques to see and learn what they could of the topology. After discerning and identifying "targets," the hackers then systematically launched dozens of attacks, at times in combinations concurrently.

Cisco came out the big winner in this test, proving it could build a VoIP network — comprising its IP PBX and CallManager Software plus \$80,000 worth of Layer 2/3 networking and security gear — that a sophisticated hacker assault team could not break or even noticeably disturb. The elaborate IP telephony package — with underlying Layer 2/3 infrastructure and assorted security add-ons — is the most secure that Cisco's collective network security expertise could muster, employing every defensive weapon in the Cisco arsenal. And it worked. After three days, the attack team could not find a perceptible disruption to phone communications.

Cracking the wireless security code

To get a good handle on whether or not you can deploy a secure WLAN, we assembled 23 products from 17 vendors and ran them through a battery of standards-based and brute force tests (DocFinder: 6073).

When the dust settled in the labs of testing partners Snyder and Thayer, we made some picks based solely on the products' security parameters. On the client side, they recommended wireless network interface cards from 3Com and Cisco because they offer a range of security options, don't have broken Wired Equivalent Privacy (WEP) implementations and offer a clear direction toward 802.11i, the most secure of the proposed wireless security mechanisms.

For access points, the decision is tougher. 3Com and SMC Networks passed all our tests, but we also feel that Cisco, HP and Proxim — which failed the WEP tests — should be on any short list because of the additional security features they offer. Even Compex, with its small office/home office access point, had the ability to switch users to different virtual LANs, which is a great security feature.

For wireless switches, we recommend the Aruba Wireless Networks, Aire-space (recently bought by Cisco) and Trapeze Networks boxes, again, based on the variety of options offered. In corporations, these products will provide more security than any of the static access points tested.

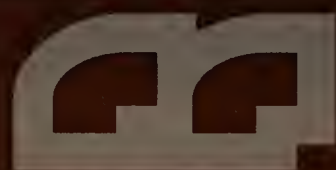
Over the top anti-spam testing

What do you get when you cross 36 anti-spam products with a 10,000-message live data stream? In an environment where spam comprises as much as 75% of all e-mail, a whole lot of data.

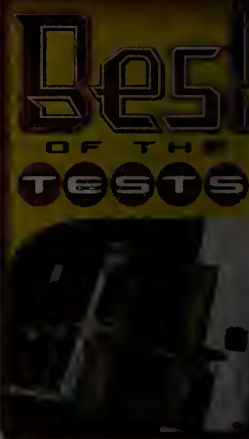
All 36 software, appliance and service-based products underwent the first round of tests where we measured for spam catch rate (including false-positive and false-negative rates), and performance and throughput conducted by Snyder (DocFinder: 6074). From that field, we felt any product with a greater-than-90% spam catch rate and lower-than-1% false-positive rate warranted a closer examination (DocFinder: 6075).

Our short list included: services from Postini, Advscan and Mycom; appliances from BorderWare, CipherTrust, Barracuda and Messaging Architects; software packages tested on Unix from Sophos, Proofpoint and Cloudmark; and software bundles tested on Windows from Symantec and MailFrontier.

As Snyder noted, "It's not a question of better or worse. It's more a question of what solves your problem best." ■



Because of the nature of these tests, naming absolute winners wasn't possible. But that's not to say that some of these products aren't worthy for this year's Best Products portfolio.



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OPEN SOURCE tried and true

Six Network World Lab Alliance members praise the open source testing tools they love to use.

BY SANDRA GITTLEN

Rodney Thayer, member of the Network World Lab Alliance, is a big believer in using open source tools when simulating enterprise environments for testing purposes. "I dispute vigorously the claim some vendors make that using open source tools is not production-grade testing. [They] bury open source technology in their products, some even without attribution," says Thayer, who is an independent network security consultant. "They can't tell me that [a tool like] OpenSSL is not good enough to test against when they are simultaneously claiming it's good enough to sell to me."

Thayer and fellow Lab Alliance partners Mandy Andress, president of ArcSec Technologies; John Bass, technical director at Centennial Networking Lab; Thomas Henderson, principal researcher, Extreme-Labs; David Newman, president of Network Test; and Thomas Powell, founder of PINT; recently told us which open source tools they find most helpful when conducting tests.

TOOLS: AirJack and File2Air
SOURCE: sourceforge.net

What do they do? AirJack is a device driver for 802.11 raw frame injection and reception, and File2Air puts the AirJack contents on the wireless network.

Who likes them and why? Wireless testing guru Henderson relies on these two tools regularly. "File2Air allows us to develop 802.11 packet types and insert them into AirJack wireless LAN client drivers," he says. "We can test how an access point reacts and also get a good view on access points from how they react to differing streams. We also use File2Air to emulate error conditions and perform denial-of-service simulations."

TOOL: Ethereal
SOURCE: www.ethereal.com

What does it do? This network protocol analyzer, which runs on Unix, Linux and Windows systems, can dissect more than 650 protocols (for a list of the protocols, visit www.ethereal.com/introduction.html#features).

With Ethereal, users can access live network data or view, edit and save data-captured files.

Who likes it, and why? Ethereal gets high marks from Newman and Andress for supporting an array of network devices, running on many platforms, and being easily extensible and easy to use. "It's got the best interface and the most options available," says Andress, adding that her favorite feature is the ability to monitor traffic at the packet level so she can watch specific communications while ignoring others.

TOOL: Fedora Core
SOURCE: fedora.redhat.com

What does it do? Fedora Core comes out of the Fedora Project, a Red Hat-sponsored effort to build a complete, general-purpose operating system from free software. Red Hat engineers and devel-



opers from the open source community at large create new releases.

Who likes it, and why? Thayer and Andress favor this tool but employ different versions. Thayer likes Red Hat Fedora Core 1 (now known as Fedora Legacy), but recommends skipping the "flaky" Fedora Core 2. Fedora Core 3, the latest installment of the operating system, gets Andress' vote. "Red Hat is the most-used Linux system in enterprise systems, and [Fedora Core 3] is developed off the base of that," she says. That gets testing very close to a commercial Linux environment without the expense, she explains.

TOOL: Firefox, with LiveHTTPHeaders and Web Developer Extension
SOURCE: www.mozilla.org

What does it do? This Web browser features pop-up blocking, tabbed browsing, Active X control bans and an intelligent search engine.

Who likes it, and why? Web site developer Powell sees Firefox catching on as an open source alternative to Microsoft's Internet Explorer. He adds testing panache to the browser via the LiveHTTPHeaders and the Web Developer Extension add-ons. The LiveHTTPHeaders help users debug Web applications, see which kind of Web server a remote site is using, and view cookies sent by the remote site. The Web Developer Extension simply adds a menu and toolbar to the browser with critical Web development tools that let you validate the CSS, HTML and accessibility of Web pages. The Web Developer Extension also lets you make live edits to CSS pages, and configure Web site colors, create keyboard shortcuts and view style information for page elements.

TOOL: Iperf
SOURCE: dast.nlanr.net

What does it do? Analyzes network bandwidth and comes in handy for determining how adjustments to TCP and User Datagram Protocol

See Open source, page 68

I dispute vigorously the claim some vendors make that using open source tools is not production-grade testing.

RODNEY THAYER

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Best PRODUCTS

Open source

continued from page 66

(UDP) parameters, such as window size, bandwidth and time to live, would affect network performance.

Who likes it, and why? Bass calls lperf "a must-have for measuring link capacity, latency and packet loss."

TOOL: Kismet

SOURCE: www.kismetwireless.net

What does it do? Available for PCs and Macs, Kismet is a WLAN security assessment tool that works with 802.11 a/b/g for network detection, intrusion detection and sniffing.

Who likes it, and why? Kismet is important for finding wireless networks, offering up details about those networks and trying to crack Wired Equivalent Privacy keys, Newman says.

TOOL: Multi Router Traffic Grapher (MRTG)

SOURCE: www.mrtg.org

What does it do? Monitors traffic loads on network links and creates a live visual representation of this traffic via HTML; can test system load, logon sessions and modem availability. MRTG, based on Perl and C, can operate in a Unix or Windows environment.

Who likes it, and why? Bass recommends MRTG as "a time series data grapher that's great for monitoring network link utilization or anything that has data that changes over time."

TOOL: Netperf

SOURCE: www.netperf.org

What does it do? This benchmarking tool lets IT managers test for unidirectional throughput and end-to-end latency in TCP, UDP, Unix and other environments. Its primary focus is on bulk data transfer and request/response performance.

Who likes it, and why? Newman calls Netperf "a simple and powerful PC-based traffic generator."

TOOL: Nmap

SOURCE: www.insecure.org

What does it do? As the name suggests, Nmap maps out available hosts, the services those hosts are offering and what operating systems are in use. Nmap also determines what types of filters or firewalls are employed.

Who likes it, and why? Several Lab Alliance partners count Nmap among their favorite open source wares for its ability to rapidly scan large networks or single hosts. Andress uses the tool to confirm services running on a system, while Henderson considers it a standard auditing tool for verifying configurations and to help assure operating system/networking operating system protocol types. "It runs on a variety of platforms and is an older and mature open source project," he says.

"Anyone should be able to run it and see decent results," Thayer adds.

TOOL: Nessus

SOURCE: www.nessus.org

What does it do? One of the most popular open source testing tools, this vulnerability scanning tool matches results against a massive database of security holes. An RSS feed lets users monitor security checks and updates. Nessus runs on Windows, Mac OS X and Unix.

Who likes it, and why? Nessus is key in checking for known vulnerabilities in mission-critical enterprise devices and applications, Andress says. Thayer agrees, saying that all vendor quality assurance departments and IT managers should be testing against this "cute, easy-to-get, GUI-based" network scanner. "At least once every six months, I catch a product actually crashing, severely, when I scan it with Nessus," he says.

TOOL: Snort

SOURCE: www.snort.org

What does it do? Developers tout Snort as an open source intrusion-detection system, but the software also functions as a packet sniffer and logger. Snort detects attacks and probes, including buffer overflows, stealth port scans and CGI attacks, and alerts users to problems in real time.

Who likes it, and why? Talk to anyone in the security field and chances are you'll hear about Snort. Andress, for one, finds the tool an important part of her testing arsenal because it's the "most equivalent to

Who's who in the Network World Lab Alliance



Mandy Andress

- ArcSec Technologies
- Security hardware and software



John Bass

- Centennial Networking Lab, North Carolina State University
- Server and network hardware



Travis Berkley

- LAN Support Services, University of Kansas
- Messaging, collaboration and wireless products



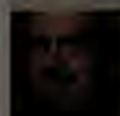
Jeffrey Fritz

- Director of Enterprise Network Services for the University of California, San Francisco
- LAN/WAN and network management



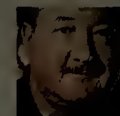
James Gaskin

- Gaskin Consulting
- Operating systems and SoHo products



Thomas Henderson

- ExtremeLabs
- Wired and wireless systems analysis and performance



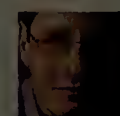
Edward Mier

- Miercom
- VoIP and storage products



Barry Nance

- Independent consultant
- WAN/LAN, mobile device and application management products



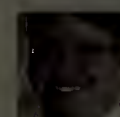
David Newman

- Network Test
- Internetworking equipment and security products



Christine Perey

- Perey Research and Consulting
- Multimedia networking technologies



Thomas Powell

- PINT
- Web design, infrastructure and management



Joel Snyder

- Opus One
- Security hardware and software



Rodney Thayer

- Independent network security consultant
- Security hardware and software

commercial products."

Snort benefits from having a large pool of developers working on updates, she says. "It's stable, and new signatures are added almost as instantaneously as they're found, including Microsoft exploits," Andress says.

Gittlen, former events editor at Network World, is a freelance technology editor in Northboro, Mass.

The buy side

While many Network World Lab Alliance members favor open source tools for testing, some say commercial tools are more appropriate at times. And at least one, Joel Snyder, senior partner at Opus One, will only use commercial tools.

"We don't actually use any open source tools anymore. We've had too many bad experiences... and they aren't oriented toward scientific testing," Snyder says.

He points to TCP and User Datagram Protocol (UDP) throughput testing as an example of in which commercial tools work better. Testers "like to use [Test TCP], which is a really simple program. But you can't get statistics as the flows go by — you only get a single set of numbers at the end. This means you can't see the behavior of the system as the load changes."

Plus, Snyder says, open source tools don't have a high degree of parallelism. "They sit on top of an operating system and are only good for the simplest of tests," he says.

Most testing of security hardware and software tools he performs at his lab can be done with commercial tools. Among his favorites: Spirent Communications' suite of network assurance and diagnostic tools.

"They're so much more reliable" than open source tools, he says. And if Spirent doesn't have what he needs, Snyder says he writes it himself.

Network Test President David Newman, who uses Spirent's tools for switch, router and

When Lab Alliance members go commercial, these are the tools they seek out.

Layer 4-7 testing, says open source tools oftentimes fail at scalability. "For the kind of box testing I do, there just aren't open source tools to generate tens or hundreds of ports at gigabits per second and then collate those results," he says.

Even open source advocate Thomas Henderson, principal researcher at ExtremeLabs, says sometimes the situation dictates the use of commercial tools. "I prefer tools that are open source or shared source so that I can guarantee they haven't been modified to suit the results. But no matter the source status, we have to use the best and most appropriate tools for the characteristics we're testing," he says.

Henderson counts among his trusty fallbacks Ixia's Chariot and Fluke's Layer 2 and Layer 3 tools such as OptiView.

Some Lab Alliance members have a set of rules for when commercial tools are a better bet. Rodney Thayer, a private network security consultant, offers this advice: "If you're in an environment that must demonstrate it uses equipment and tools with an active maintenance contract in place," then commercial testing tools are necessary.

Thayer, also a fan of Spirent's offerings and security scanners from Agilent, says he avoids using open source tools that require him to compromise confidential information in the products to satisfy the license.

— Sandra Gittlen

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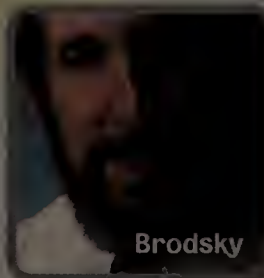
Selected by five columnists, these products and services offer fresh approaches to today's network problems.

THE CATEGORY-BREAKER: BroadbandAccess Service

THE VENDOR: Verizon Wireless, www.verizonwireless.com

THE COLUMNIST: Ira Brodsky, president of Datacomm Research, Totally Unplugged

What makes this service so special? Until now, corporations willing to use mobile data to improve field productivity and service had to make significant, often unacceptable, trade-offs. Applications had to be "dumbed down" to work over slow and unreliable services via devices with frustratingly small screens and keyboards. Verizon Wireless' CDMA2000 EV-DO service, marketed as BroadbandAccess, performs more like DSL or cable modem service than familiar cellular data. BroadbandAccess heralds the long-touted era of 3G wireless. With Evolution-Data Optimized technology, organizations not only can extend enterprise networks into the field but also can reach customers equipped with handheld multimedia devices in new ways — perhaps changing the way we conduct business.



Brodsky

Who's using it? Because CDMA2000 EV-DO rolled out during the second half of 2004 in select cities, corporations are just starting to kick its tires. One of Verizon's biggest mobile data customers, UPS, is testing it. Other companies are doing the same but are reluctant to talk about it for competitive reasons. However, this is a technology that many users will start to employ on their own, so it behooves IT leaders to learn what EV-DO can and can't do in order to better manage and secure its use. Verizon now offers at least partial coverage for BroadbandAccess in 30 cities and plans to cover 150 million people (about half the U.S. population) by the end of 2005.

Suitable business applications include e-mail (even with large attachments), Web browsing, database queries and multimedia messaging. Consumer applications include games, mobile TV, mobile commerce and location-based services.

How much will it cost the average enterprise? Verizon initially targeted business users exclusively, selling PC cards for \$100 (after a \$150 mail-in rebate) with a one-year service contract and \$50 with a two-year contract. The service costs \$80 per month with unlimited use.

verizonwireless

THE CATEGORY-BREAKER: Vintela Authentication Services

THE VENDOR: Vintela, www.vintela.com

THE COLUMNIST: Dave Kearns, writer and independent consultant, Wired Windows

What makes this service so special? Anyone who can bring Microsoft and Linux together deserves consideration for a Nobel Prize, but that's beyond our power. The least we can do is recognize Vintela with the Category-Breaker Award for simplifying the management of heterogeneous — Windows, Unix and Linux — networks. Vintela Authentication Services lets you manage a single logon/password for Unix, Linux and Windows efficiently — and securely — while extending Microsoft's implementation of Kerberos authentication to the 'nix platforms.

Who's using it? This simple, elegant solution was adopted by almost 100 organizations, such as Advanta Bank, Boeing, Brown & Williamson Tobacco, Cross Country Healthcare, Lockheed Martin, Paymentech, RotaDyne, the U.S. Department of Agriculture and Vertex Pharmaceuticals.

How much will it cost the average enterprise? Pricing is based on a combination of \$200 per managed host/server and \$25 per managed user. Vintela offers volume and site discounts.



Kearns

THE CATEGORY-BREAKER: Access Enforcer

THE VENDOR: Virsa Systems, www.virsa.com

THE COLUMNIST: James Kobielus, independent IT consultant and analyst, Above the Cloud

What makes this service so special? Access Enforcer combines role and permission provisioning with workflow in a powerful new way. Access Enforcer automates the access-provisioning approval workflow. If users request online access to resources for which they don't have permission, Access Enforcer automatically forwards the request to internal approvers within a pre-specified, customizable business workflow. Updates to roles and permissions are automatically applied to enterprise directories only when access requests are approved within the appropriate



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workflow. When implemented within Virsa Systems' Continuous Compliance Suite, Access Enforcer automatically ensures that users aren't granted roles or permissions that might violate applicable laws or create conflicts of interest. (Access Enforcer is a separately licensable suite component.)

Who's using it? Virsa Systems developed Access Enforcer at the request of its user group of more than 100 enterprise customers in various

verticals: aerospace, agribusiness, chemicals, consumer products, defense, financial services, government, healthcare, higher education, high-tech, media, oil and gas, pharmaceuticals, transportation and utilities. Almost a dozen customers currently have Access Enforcer in various stages of deployment, the company says. All have deployed Access Enforcer over SAP's enterprise applications and platforms.

How much will it cost the average enterprise? Pricing is based on a software license of \$50,000 per instance deployed.

THE CATEGORY-BREAKER: ThinkPad T42

THE VENDOR: IBM, www.ibm.com

THE COLUMNIST: Johna Till Johnson, president of Nemertes Research, Eye on the Carriers



Johnson

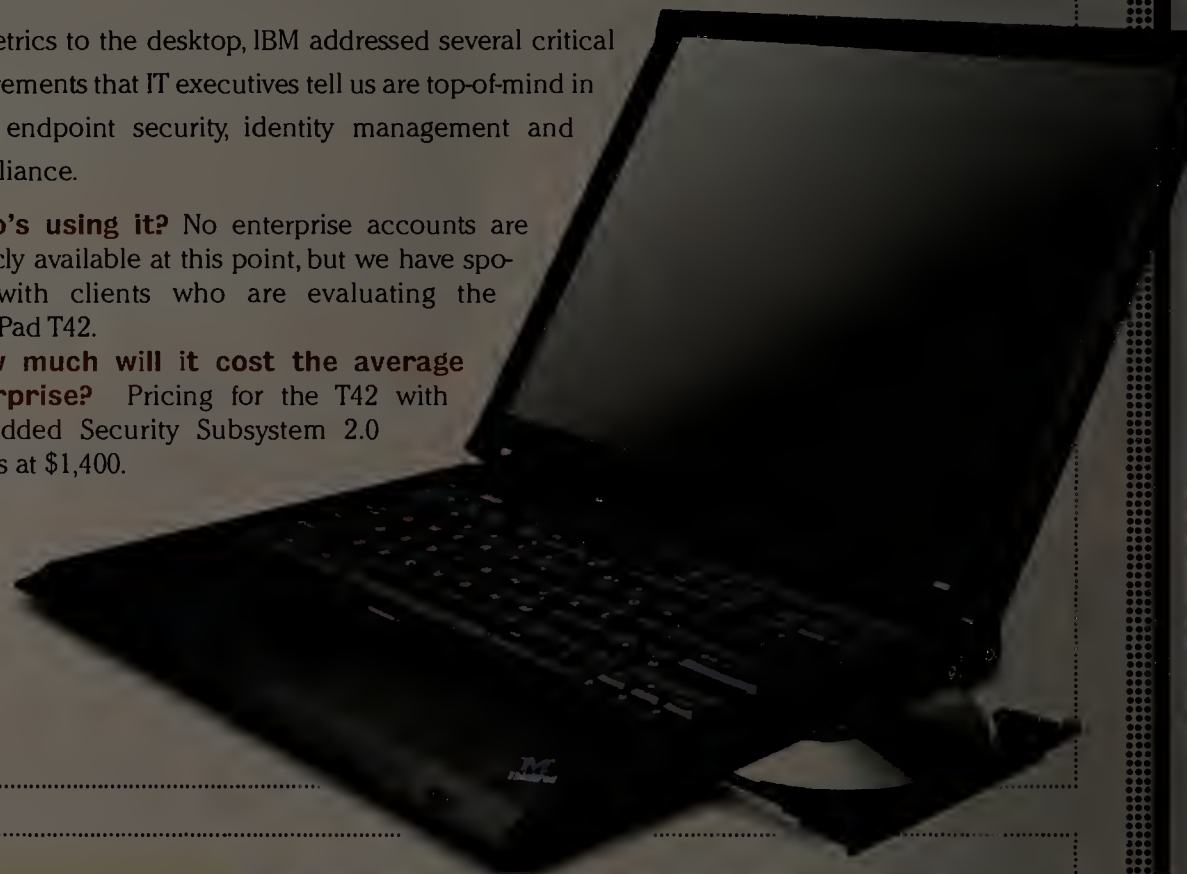
What makes this service so special? Biometrics has been the "next big thing" in security circles for the past five years. IT executives are intrigued by the possibilities, but reluctantly end up concluding that the technologies aren't

quite simple enough to roll out to thousands of end users. That changed with IBM's December introduction of the ThinkPad T42, which includes the IBM Embedded Security Subsystem 2.0, which features a built-in fingerprint scanner. By bringing

biometrics to the desktop, IBM addressed several critical requirements that IT executives tell us are top-of-mind in 2005: endpoint security, identity management and compliance.

Who's using it? No enterprise accounts are publicly available at this point, but we have spoken with clients who are evaluating the ThinkPad T42.

How much will it cost the average enterprise? Pricing for the T42 with Embedded Security Subsystem 2.0 begins at \$1,400.



THE CATEGORY-BREAKER: Eli

THE VENDOR: Electronic Lifestyle Integrator, www.trusteli.com

THE COLUMNIST: Winn Schwartau, president of Interpact, On Security



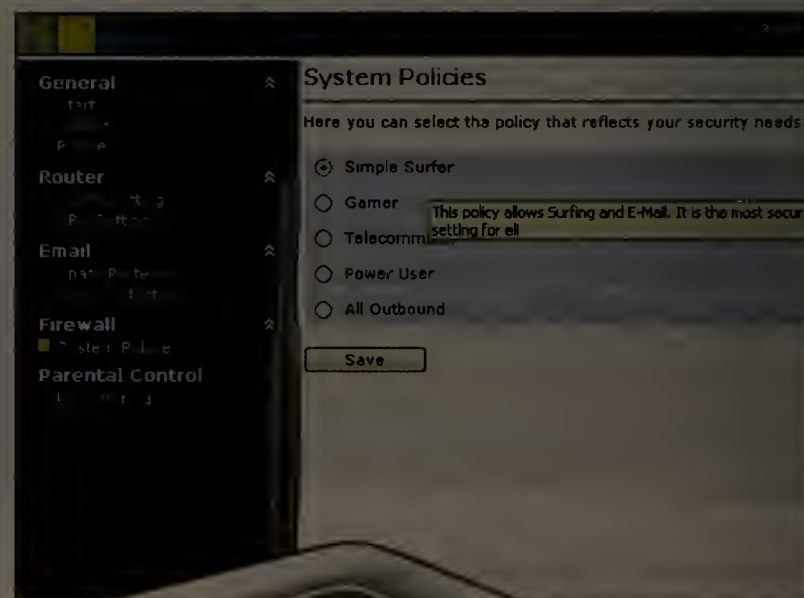
Schwartau

What makes this service so special? It is a rare year indeed when I get slap-happy over a product, but Eli certainly made me so. Eli brings hope to the professional security officers struggling to maintain a reasonable level of security for a corporation with hundreds of distance offices, telecommuters and travelers moving hither and yon across the globe. Once this small lightweight is connected to

a cable modem or DSL line, or router, Eli "calls home" and is assigned a "master server" somewhere in the company's expansive global infrastructure. Your Eli, which has secure Ethernet and wireless ports and a built-in network address translation firewall, then is updated with the latest and greatest in anti-virus signatures, spyware blocks, content filtering decisions, popup detectors and more. Here, Eli shines more than any other product I have seen in years, putting it into a category of its own!

Who's using it? ELI is in negotiations with a number of systems integrators and service providers, and a handful of high-profile enterprise organizations.

How much will it cost the average enterprise? About \$200, with service that starts at \$10 per month for complete automatic managed security for a small network.



More online!

What else should you know? Our columnists share detailed explanations of why they're so keen on these five products.

DocFinder: 6076



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FAVE RAVES

BY BOB VIOLINO

Five readers discuss their favorite network products and services.

**THE FAVE: NetLightning
web acceleration service**

VENDOR: Netli

“

customers began to see performance improvements.”

AS

a multinational bioscience company, we were looking to extend our U.S.-based e-commerce presence to customers and distributors in Asia and

Europe. Early testing with several key distributors looked promising, except for consistent feedback that performance was too slow. Millipore consolidated its IT infrastructure several years earlier, scaling back data centers in France and Japan to reduce costs and management complexities. But external visitors to Millipore.com needed to access our centralized infrastructure in Massachusetts, and geographically remote locations were experiencing latency delays of up to seven seconds on our site.

Because of the highly dynamic nature of the e-commerce applications and the tight integration with our central back-end database, traditional Web caching and externally hosted solutions created their own set of problems. Fortunately, we discovered Netli's NetLightning service, which met several important criteria. Because we had a large production site in use by customers in several regions, any product needed to be easy to implement without disrupting current customers. We also were working with a small staff focused on bringing new functionality online; we couldn't afford to be distracted by modifications or special configurations of our applications or network infrastructure. Third, the solution would need to support highly dynamic pages that would be generated on the fly for each user.

Within minutes of us turning on NetLightning, customers began to see performance improvements. The service has been instrumental in the recent launch of our e-commerce store in Japan, with a high level of customer satisfaction and rapid growth. Immediately after we began subscribing to NetLightning, our customers were able to access our e-commerce site up to 77% faster. The 8,000 to 10,000 scientists and engineers who come to our site every day are getting a rich array of technical information and media delivered much faster and more reliably than ever.

*Jeffrey O'Halloran,
manager, Internet services,
Millipore, Billerica, Mass.*

YEARS IN NETWORKING: **7**



*Mike Bennett,
senior network engineer, Lawrence
Berkeley National Lab, Berkeley, Calif.*

YEARS IN NETWORKING: **11**

“In addition to using taps for troubleshooting, we deliver tapped subnets for intrusion detection/prevention and forensic analysis.”

**THE FAVE GigavUE
with Gigamon Systems**

L

Lawrence Berkeley National Lab's enterprise network, LBLnet, is an Ethernet in a star topology that provides connectivity for some 12,000 devices. About 10 years ago, we migrated from a shared to a switched infrastructure, leading to gradual "blindness" as we installed new switches and removed old hubs and probes.

We began to install network taps so we could troubleshoot the network. [Network taps, like GigaVUE, are used to create permanent test access ports for passive monitoring. A tap can be set up between any two network devices, such as switches, routers and firewalls.] In the last four years, the need for network security has been more demanding than ever. So in addition to using taps for troubleshooting, we deliver tapped subnets for intrusion detection/prevention and forensic analysis. The need for tapping LBLnet has become even more crucial.

Why use taps and not port mirroring on switches? The decision boils

See Bennett, page 76





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Bennett

continued from page 74

down to whether or not you're willing to accept frame loss and jitter in the system design. Switches have buffers, processors and operating systems. Further, their primary function is not to "mirror" frames. It's a simple fact of life that switches have bugs, some more than others. There are

times when bugs that have nothing to do with port mirroring will affect the ability to deliver frames to the troubleshooting and security equipment. Worse yet, bugs with port mirroring can affect the ability to deliver production traffic. Compare this with a simple passive tap, which has no CPU, operating system or buffers. It simply couples some of the transmitted energy from the transmission line to another output port.

An integrated network tap provides the best of both

worlds. It integrates passive tap technology into a system that also provides features associated with switching — filtering and aggregation of lower-speed ports to a higher-speed port (several Fast Ethernets into one Gigabit Ethernet). Filtering and aggregation take the burden off the machines that capture and analyze packets, so we can use fewer and lower-cost machines to build the system.

(The opinions in this article are solely Bennett's. LBNL does not endorse products or services.)

"I bought this tool out of self-defense, because when applications don't function the way the user expects, the problem is always the network is dragging!"

*Chuck Literati,
director of enterprise
networks and
integration services,
Ahold USA,
Greenville, S.C.*

YEARS IN
NETWORKING: **15**

THE FAVE: **IT GURU**

VENDOR: **Opnet Technologies**

WE

use IT Guru to identify problems with applications on LANs and

WANs. I bought this tool out of self-defense, because when applications don't function the way the user expects, the problem is always "the network is dragging!"

IT Guru analyzes N-tiered transactions. For instance, a Web-based transaction might go from the client's browser to a Web server, a Lightweight Directory Access Protocol server, an application server, a database server and back. We run a baseline of critical transactions under ideal conditions to get transaction profiles. We place an agent on the client PC and each server along the way. The analyst then tells the tool to capture all conversations between the client PC and the Web server, and so on. IT Guru then puts all those conversations together so we get an end-to-end view. These measurements give us transaction timings that are the basis for our service-level agreements.

If the transaction goes from 2 to 60 seconds, an analyst using this tool quickly can identify the specific server or the network link where the delay is occurring. He compares the baseline trace to the 60-second trace and the source of the problem is usually obvious. We might find that we need to perform maintenance on a database. If that's the case, the database server will show increased times from first request-in to last data-out. We can then resolve the problem and get the client back in service much more quickly than we previously could.

An interesting problem we had was with our "Planogram" application, which tells our grocery store managers exactly how to lay out the shelves with products. It uses a relational database to store data and objects. A category manager was running a simple rename of a product from "green beans" to "French cut green beans." Everyone knew that this transaction should take no more than a second, but it was taking almost a minute. We put IT Guru on the problem and learned that the transaction was passing a 4M-byte JPEG file in the stream. When we showed the developer the trace, he quickly fixed the problem.

THE FAVE: **Corente VPN** VENDOR: **Corente**

T

his is the most effective service we've ever put in. It's a proprietary VPN delivered as a managed service. Illinois Tool

Works is very decentralized, with more than 625 business units in 44 countries. A lot of these businesses came through acquisitions made over the last 10 years, and each one has its own software and systems. Through this managed service, Corente provides us with a secured network and lets us push out any new IT applications that we need to provide to the business units around the world.

Corente saves us time by providing the latest software patches and feature enhancements that the business units need. We started using this in 2001, and it has enabled us to seamlessly connect a wide array of disparate systems and provide a secure network infrastructure. That infrastructure lets us send secure financial information, e-mail, voice, video and other data throughout the global enterprise.

Previously, we used multiple frame relay services from a variety of providers to connect our business units, which was very expensive. During these last few years of cost containment, we replaced the majority of frame relay connections with the Corente VPN at an estimated savings of \$5.5 million. The service also was very easy to deploy. We had all the business units up and running in less than a year.

Corente saves time by providing the latest software patches and feature enhancements needed by the business units."

*Gary Anton,
vice president of
strategic sourcing and IT,
Illinois Tool Works, Glenview, Ill.*

YEARS IN NETWORKING: **10**

THE FAVORITE IP Office VENDOR Avaya Communications

“IP office has become an indispensable tool in the management of our phone and voice processing needs of our different offices.”

Stephen Doherty, CIO,
Chicago Investment
Group, Chicago

KEY NETWORKING 12

This product is miles ahead of the phone switches we used before because it's so easily configurable either offsite or onsite. It's also easily scalable to support the growth of our business, and configurable either as a voice PBX using circuit-switched lines or an IP telephony server using high-speed dial-up access or direct leased lines. That's important, because we're planning to use VoIP communications at some point in the future. The product also has an integrated voice recorder, which saves the expense and maintenance of a separate device, and frees up valuable rack space. IP Office has become an indispensable tool in the management of our phone and voice processing needs of our different offices.

We installed the switch initially at our Boca Raton, Fla., branch office in July 2004, and our president was so impressed that he asked us to install it in our New York office. We also are putting a switch in our Chicago office. IP Office supports applications such as enhanced messaging and Web-enabled conferencing. Our employees can manage their phone calls using a graphical interface, and they can get phone

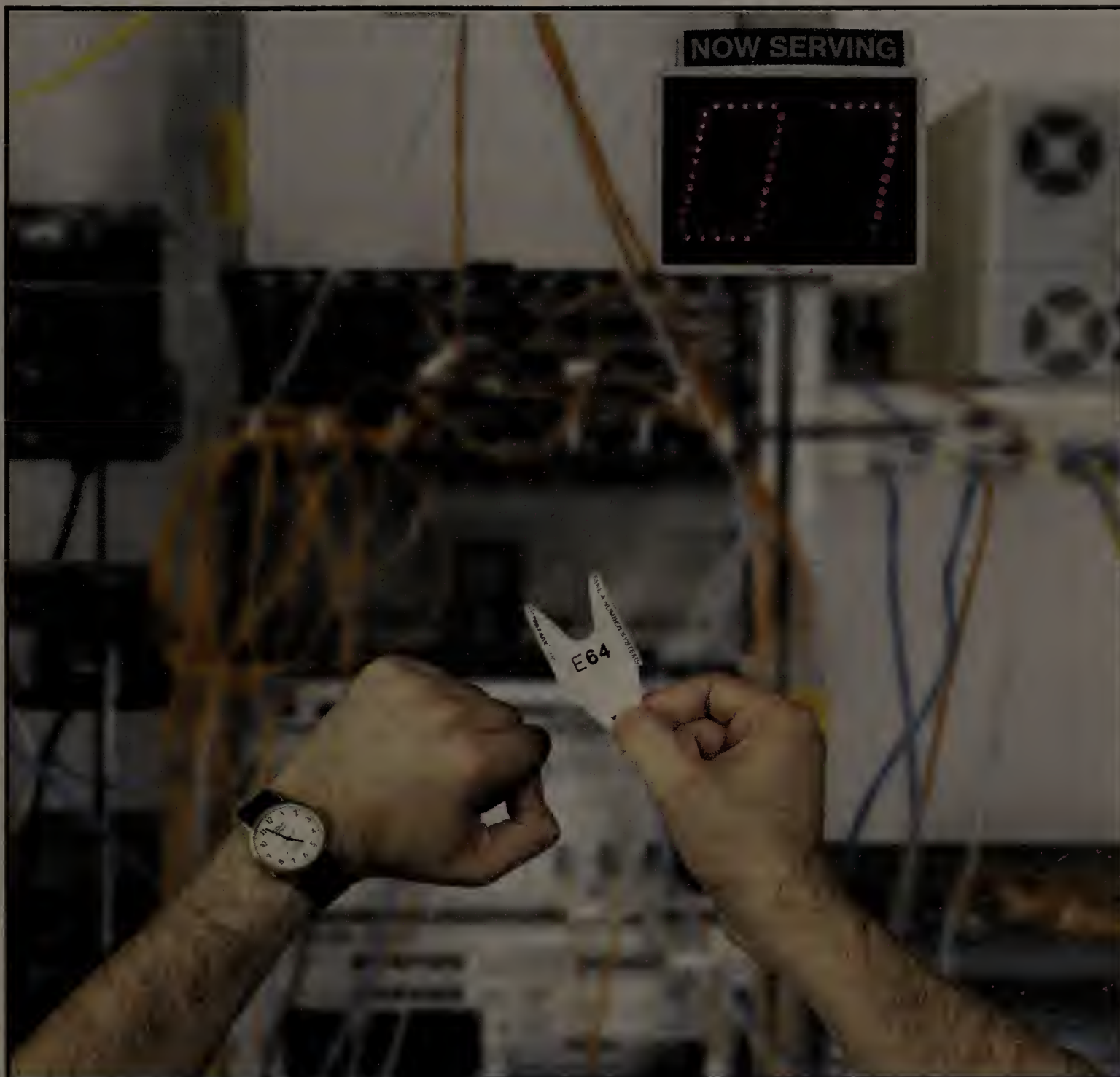
messages in the form of e-mails.

We're in a flux period, and a lot of our brokers frequently move around to different offices. The fact that this product enables such easy configuration of lines makes it

valuable. We have cut down on the amount of time it takes us to configure new lines from five or six hours a month per office to about 20 minutes per month. We don't have to go to an outside vendor to program the

switch, as we did in the past.

Violino is a freelance writer covering business and technology. He can be reached at bviolino@optonline.net.



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SERIES
Sign-off

Really cool tools



Keith Shaw, senior editor of product testing, picks the coolest of the cool products he tested in '04.

After I try out a product, I often never think of it again — unless I discover that I simply can't live without it. Of the 145 or so products I tested last year, six have withstood the Shaw Test of Time — they remained useful to me throughout long-term tests. Another five were not subjected to longevity testing, but grabbed my admiration all the same. I think of these eleven products as my Really Cool Tools picks.

Altec Lansing's inMotion portable audio speaker: This device (\$130) helped jump-start the Apple iPod accessory revolution. Once connected to an iPod (or any other portable music device), these portable speakers blast out your playlists — Barry Manilow and all.

Apple's AirPort Express: Speaking of Apple, this little gadget (\$130) does wonders. It's a portable wireless access point (when linked to a broadband connection via Ethernet) that can connect to a stereo system for streaming iTunes music from your PC and to a printer for easy printing from your laptop. The installation isn't the prettiest in the world (especially at Home Interoperability), but once you get things working, it's very cool (www.nwfusion.com, DocFinder: 6032).

Belkin's Powerline Ethernet Adapter: My home network has become the poster child for interoperability, with different flavors of wireless, Ethernet and about a dozen device types clamoring for network attention. Fortunately, the Belkin Powerline Ethernet Adapter (\$57) has solved one of my problems — a flaky wireless connection between an upstairs PC and the rest of the network. By integrating the powerline adapter, I've rid myself of worries about wireless interference from my microwave oven, cordless phones or whatnot (DocFinder: 6029).

Epson's PictureMate photo printer: The office now has an official printer for all digital photo printing needs. PictureMate (\$199) blows away the four or five other photo printers we tried last year in terms of picture quality, ease of use and the ability to print directly from our memory cards. It isn't as fast as we'd like, but we can forgive that for picture quality. We don't have to worry about replacing specific ink cartridges (when we run out of paper, we replace the ink system with a new

pack), just another plus in this fine product (DocFinder: 6033).

Logitech's MX1000 Laser Mouse: This cordless beauty (\$65) has replaced my old, ratty roller mouse. While the sleek, black mouse oozes style, more important, the "laser" technology runs circles around typical optical mice. You can accurately use the MX1000 on surfaces that you can't with optical mice (including glossier surfaces). And its ergonomic shape makes long Web surfing sessions more comfortable. My only problem — I forget to put the mouse back in its charger when I go home at night (DocFinder: 6028).

Sinbon Electronics' USB six-in-one portable card reader: This \$20 device, which lets me read a flash memory card on my computer, was a snap to install in my USB hub and made me into an instant fan. This card reader is just so simple, elegant, easy and hassle-free (DocFinder: 6030).

And here are the products I tested in '04 that I sure did like but couldn't put to the Shaw Test of Time. Included in this bunch is the \$2,500



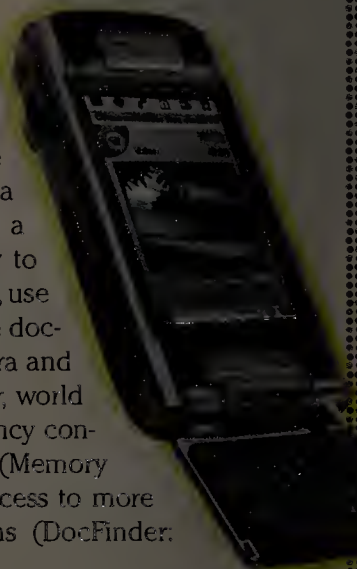
ViewSonic 32-inch LCD TV (N3200w) that beautifully adorned the office while I tested it (DocFinder: 6034). I also would love to own the \$500 Archos AV420 personal video recorder, which connects to a TV or recording device (VCR or digital video recorder) and transfers videos to the device for playing elsewhere — allowing me to be the chic geek watching my TV shows on a plane while everyone else is stuck with the in-flight movie (DocFinder: 6035).

SimpleTech's SimpleDrive 400G-byte external hard drive (\$375) also falls in that category. The device impressed me with its ability to offer quick and easy back-up capabilities, ease of installation and hard-drive size that was nothing to sneeze at (DocFinder: 6036).

On the portable device side, I had a hard time saying goodbye to the \$800 Sony Ericsson p910i smart phone. This portable device is much, much more than a cell phone — it's practically a mobile office with its ability to store data, organize contacts, use e-mail, play music and create documents. It has a digital camera and video camera, PDF reader, world time locator and currency converter. A storage slot (Memory Stick Duo) allows access to more data and applications (DocFinder: 6037).

Finally, I almost ditched my old cell phone for the \$200 LG VX7000. The VX7000 is the phone to own if you don't have a smart phone or a converged PDA device but still want to use your phone for more than just voice calls. The device includes a video/camera phone with integrated flash, two color displays (internal and external), five-way navigation button and backlit keypad. Downloading off the Verizon Wireless CDMA 1x network was faster and easier than with any other device I tried, including my suddenly ancient cell phone (DocFinder: 6038).

Of course, all these tools and devices might end up forgotten by midyear as the latest and greatest devices come into the office vying for my attention. Then again, maybe not.



Network Management/ IT Automation

and the Agile Enterprise: Tools to Bridge the Gap



What ultimately makes an agile enterprise agile? The sudden realization there's a dangerous gap between what the enterprise expects and the management tools you need when a new opportunity looms. Or growth is rapid. Or a crisis strikes.

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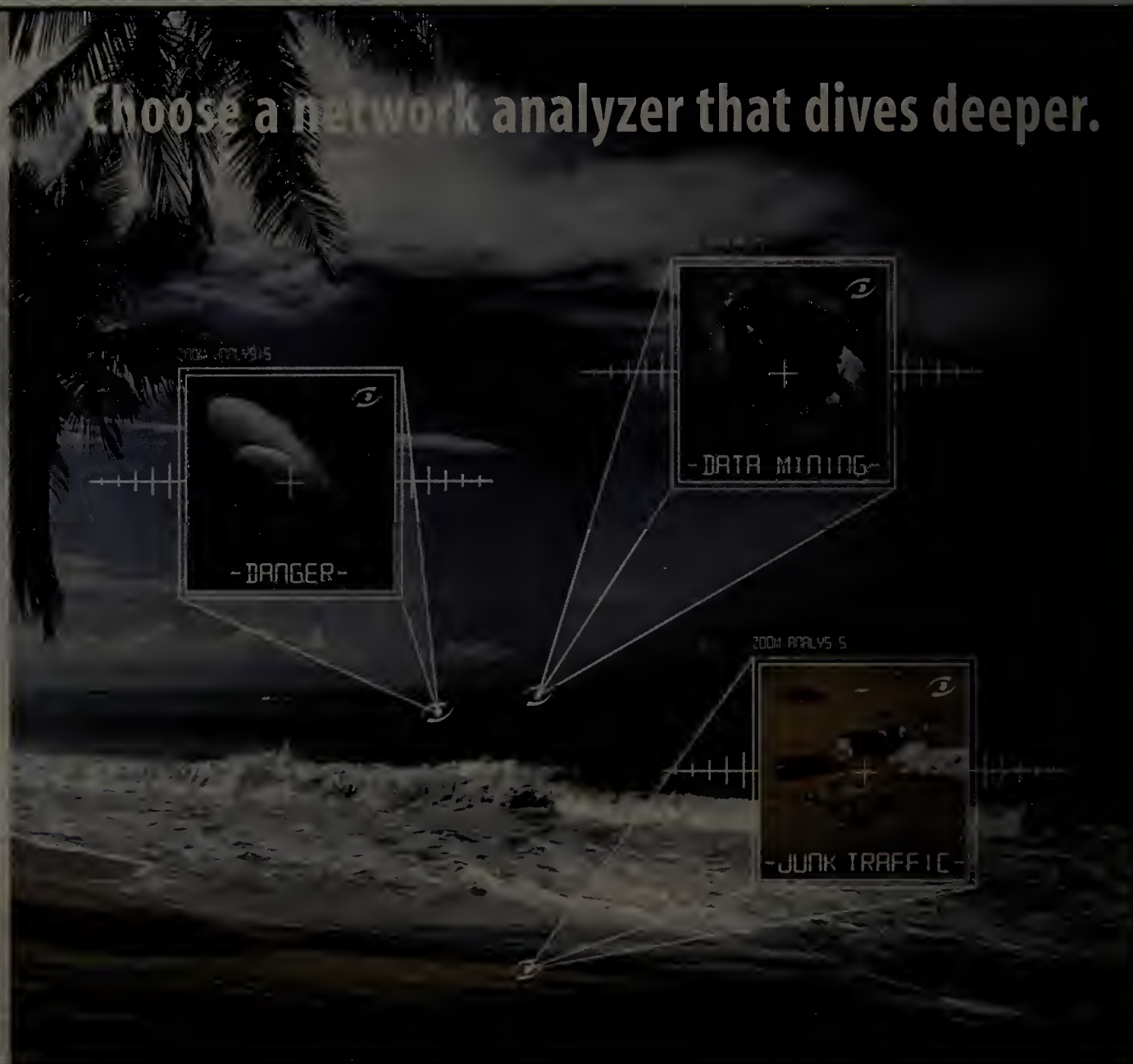
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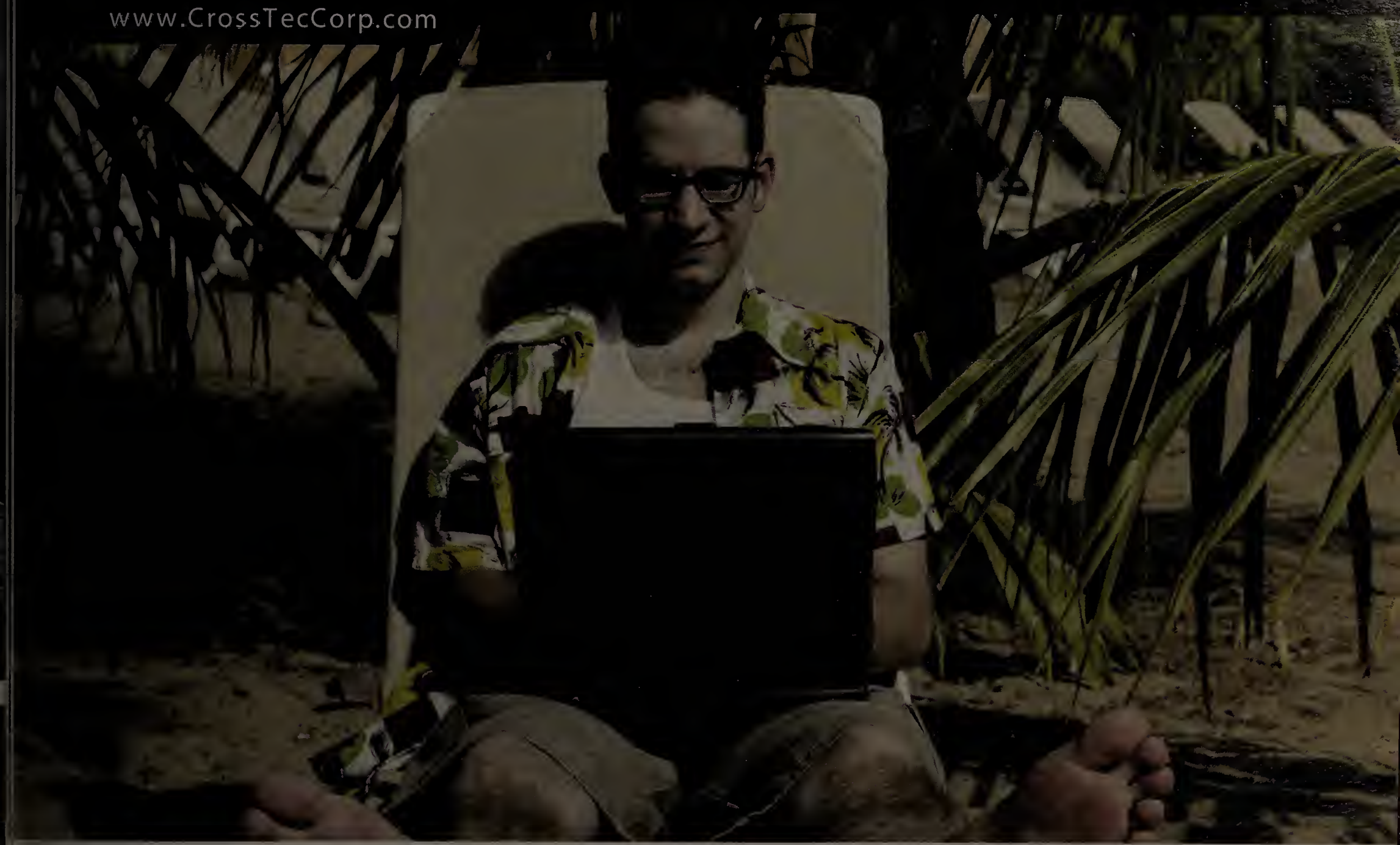
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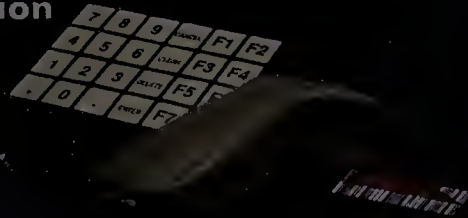
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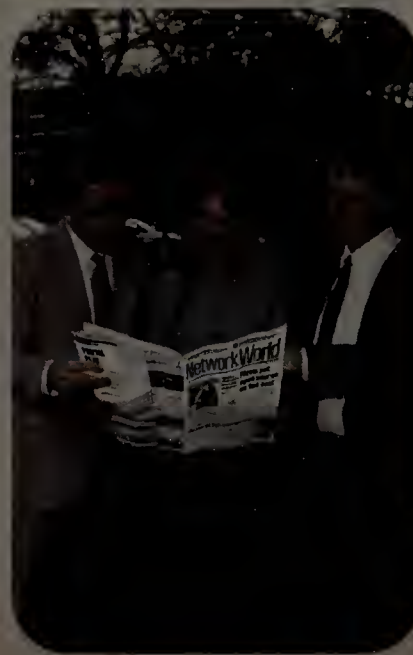
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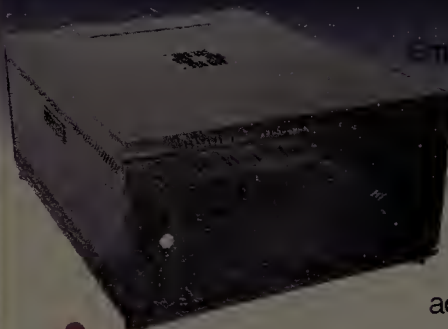
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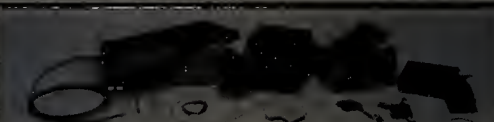
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IT Careers: Diversity Role Models Respond to Challenge

Over the past decade one of the biggest challenges in attracting under-represented minorities and women to technical careers has been the lack of role models — people who have gone before and demonstrated that everyone has the opportunity to succeed. While the statistics relating to percentage of African Americans or Hispanics or women have not changed significantly over the past five years, the reality of being able to point to a significant leader who “looks like me” is gaining traction.

Two leaders identified as role models say there are two challenges for role models: demonstrating that role models are not celebrity entertainers or athletes and helping others realize the need for several role models, not just one.

Thaddeus Arroyo, Cingular Wireless' first and only CIO for a group of 6,000 IT professionals, says the only constant role model throughout his life has been his father, who established work ethics and an approach for creating his own success. Arroyo was chosen one of the 50 most influential Hispanics by Hispanic Engineering and Information Technology magazine. Arroyo says one of the most common things he discourages is for an employee to look at a specific job — CIO or Director, for instance — and drive to gain that job. “The approach I have always taken is not to look five layers up (the career ladder) and say that's who I want to be. Rather, I look at the leaders who are close to me, my direct managers or their bosses. This isn't about where you want to end up but where you want to go next, and then building the skills and experiences to

get there. Otherwise, you're thinking so far ahead that you may miss out on building a skill set.”

Arroyo reiterates the need for multiple role models because lessons can be learned from every person and situation. He says the composite of leadership and technical skills that develops over a career generates success. He pinpoints that this approach allows professionals to focus on *achieving* something vs. gaining a specific title or job.

Roy Perry echoes Arroyo's focus. Perry, who is corporate vice president of global supply chain management for StorageTek, is recognized this month as a Superhero in the “Engineering the Future” exhibit at the Chicago Museum of Science and Industry. “It's difficult for a student to look at an engineer and say that's exciting when they have rock stars and athletes that they see and hear every day,” Perry points out. “We need to show them that there is a place for them (in information technology and engineering) to design and create, that they may not be able to dunk a basketball but they can have a passion for this.”

Perry works to keep that passion, which he kindled as a child watching John Glenn and then through a series of teachers (and yes, he recalls Ms. Ward, Mr. Easton and Mr. Griffin by name). He believes it is critical to identify evolving leaders and then assure they have challenging assignments. “Sometimes I have to create that challenge,” he says. “If a bright, technical person is idle, he becomes bored and you lose them.” Perry adds community

responsibility to role model categories, in addition to leadership and technical role models. He says to watch role models in all three areas to learn how they make decisions, execute and carry through. “The community responsibility is important because it rounds out the engineer or scientist, helps them to understand that they have a responsibility to their own families but also to making the community a better place. If you don't learn this, when you do become a corporate executive your view of corporate responsibility is quite diminished. We all need to think in a way that our company or business exists in this town, and this town should be better because we were here.”

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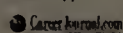
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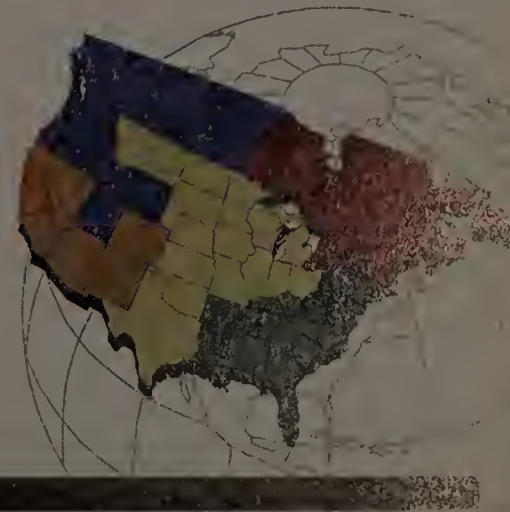
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BackSpin Mark Gibbs



Rendering verdicts

OK, the verdict is in. Or rather, it isn't. Last week I posed a trivial technical terminology question: Do applications run "on" operating systems (my esteemed editor, Mr. Dix, says this is correct) or do they run "under" them (that is my choice).

Well, dear reader, the vote split roughly 50-50.

Perhaps the most complex response came from reader Bob Hayes: "I must confess that I tend to use 'on' and 'in,' but rarely 'under' to describe my applications' running habits (that is, 'I'm running Entourage on Mac OS X right now,' but 'I've used programs in Classic' in the past.) So, 'in,' 'on' and 'under' all seem to be valid states."

Bob continued: "There's a mnemonic I remember from school that a preposition is anywhere a cat can go, but apparently a preposition is also anywhere an application can run. I've heard of applications running 'behind,' 'over,' 'with' and even 'through' other applications. Hmmm."

So now that we've totally failed to reach a verdict about that, we'll move on to more important cases.

Last week my esteemed editor penned his take on the state of Linux (www.nwfusion.com, DocFinder: 6090) after a visit to the LinuxWorld Conference and Expo in Boston. Mr. Dix's verdict?

The title of his editorial said it all: "Linux: Ready, willing and able."

Despite that thumbs up, the current sailing conditions for Linux aren't so smooth. As the editorial noted, "the most troubling questions about Linux aren't technical, but legal in nature."

Indeed, just last week Judge Dale Kimball for the District of Utah denied IBM's motions to dismiss and for partial summary judgment in The SCO Group's \$3 billion lawsuit against it over alleged copyright infringement of Unix code owned by SCO.

The judge commented that "it is astonishing that SCO has not offered any competent evidence to create a disputed fact regarding whether IBM has infringed SCO's alleged copyrights through IBM's Linux activities."

Despite that, and a stack of other issues in the way SCO has acted in the case, the judge was unwilling to grant summary judgment. I am not a lawyer nor do I play one on television, so the reasoning behind denial seems a little arcane to me. As far as I can understand, it is apparently because the judge does not want to risk seeing his final ruling reversed on appeal, something that is, so I understand, a terribly embarrassing thing for a judge.

But it is not just SCO creating fear, uncertainty and

doubt. Just consider the heavy media coverage of a study presented at the recent RSA Conference that rendered a surprising verdict: Windows is more secure than Linux (see the report from *The Seattle Times* at DocFinder: 6091).

The researchers, Richard Ford, a computer science professor at the Florida Institute of Technology, and Herbert Thompson, director of security research and training at security company Security Innovation, compared Windows Server 2003 with Red Hat Enterprise Server 3.

Unfortunately, the report won't be publicly available until the middle of March, but according to the *The Seattle Times* report, the research considered a range of factors that "included the number of reported vulnerabilities and their severity, as well as the number of patches issued and days of risk — the period from when a vulnerability is first reported to when a patch is issued."

What I can find out about the report's conclusions doesn't sound conclusive. But it's weird that so many media outlets would cover the story so profoundly despite the report being vaporware. Why delay releasing the report? Given the predictable interest in its conclusions, it seems odd that they would. The jury is out until the report is released.

Your verdict to backspin@gibbs.com.



'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Service calls in a New Yawk minute

ComputerRepair.com is headquartered in Boca Raton, Fla., but company

founder Jeff Leventhal speaks classic New Yawk as he rat-a-tat-tats his way through a half-hour pitch that sounds more like one of those sports-gambling touts on TV than your typical chief executive.

Not that there's anything wrong with it: The man is simply convinced that he has built a better mousetrap and that the IT services world is already beating a path to his virtual door. I'll vouch only for his enthusiasm — and let him tell his story.

Leventhal's 18-employee company provides an online marketplace through which some 8,000 registered IT professionals situated throughout every ZIP code in the country provide on-site services to 2,000 businesses big and small, and the occasional home user. The company facilitated its first work order last April 14 and already processes about 1,000 per day, with a goal of pushing that to 10,000, he says. About 150 new techs sign on every week.

According to Leventhal, three claims to fame set ComputerRepair.com apart from other companies that attempt to connect sellers and buyers of IT services: absurdly fast response times, low market-driven prices and a full-satisfaction guarantee.

"Here's a stat that will blow you away," he promises. "On average our calls [to techs about an available job] are accepted within 6 minutes and a tech is in route to the problem within 20 minutes. Now we didn't build the system to do that, it just does it because it works like a real market."

What he means by "like a real market" is that ComputerRepair.com doesn't set any prices, as the prices are determined by a combination of what the customer is willing to pay and who among the nearby/qualified techs is willing to accept those terms. ComputerRepair.com charges \$11 to open a work order

and rakes in 10% of the eventual fee once the client signs off on the completed job.

"Typically, you go to a service company and say, 'Here's my problem, what are you going to charge me to fix it?' With us you're saying, 'I have money on account, I need XYZ work done today, and here's what I want to pay to have it done. Who wants it?'" he says. "Then they send [the order] out to those people who they want to get the order and the first one to take it gets it. That's the fundamental difference on how we work."

Customer savings are realized by eliminating the layers of middlemen who tend to drive up costs of outsourced IT projects as work gets farmed from primary contractor to subcontractor and beyond, Leventhal says.

"With my model — because I've cut out the five handoffs in between — the client pays half [of what he might otherwise] and the tech makes more. They love it," he says. "I can give you an MCSE anywhere in the country for \$52 an hour; nobody can come close to that, OK. But for the MCSE, \$52 an hour is equivalent to \$110,000 a year. The average salary for an MCSE is \$62,000. They make more on my system, and clients pay less."

Of course, this only adds up to a win-win for all concerned if the work gets done well, right?

"By the way, we close out 99.7% of our calls with a six-out-of-six-star rating, that's a fact," Leventhal boasts. "It's an impossible metric. No service company in the world can touch it — nobody."

Don't ask me to vouch for the impossible, but that's what the man says. In fact, he says the number is actually higher than 99.7% but he's "embarrassed" to say so.

Because we were on the phone, I couldn't see if his face turned red, but it wouldn't be in character.

Had any experience with ComputerRepair.com? Let me know. The address is buzz@nww.com.

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